Address.

RELATION OF THE GENERAL HOSPITAL TO THE TRAINING SCHOOL FOR NURSES.*

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THE history of the training school movement in the United States is most instructive. Among the first schools in this country were those at Bellevue Hospital, at the Massachusetts General Hospital, at the New Haven Hospital, at the Philadelphia Hospital and later at the Illinois Training School. All were separate organizations endowed and organized by philanthropic women which had contractual relations with their respective hospitals, but were in no sense a part of the hospital. They were under contract to furnish a certain number of nurses to do the nursing work of specified wards, but the hospital itself felt no responsibility for the management of the school and in fact any effort on the part of the hospital to control the school was evidently resented by those who had charge of it. This was largely due to the fact that the organization of schools in this country to educate and train nurses, especially women nurses, had been regarded a dangerous experiment by conservative members of the medical profession. Training schools had a standing very much like that of the "votes-for-women movement" just now. They were still in the marching stage. They had their faces set towards the promised land but had not arrived. For this reason the ladies who were interested in the organization and devedopment of training schools were compelled to organize them without assistance from hospital authorities, as separate and distinct institutions. This was unfortunate, because it engendered a spirit of mutual criticism which continued for a long time between hospital officers and those who were managing training schools. Hospital officers and physicians under the circumstances were quick to criticise the management of the schools and to exaggerate deficiencies and short-comings even when they did not altogether condemn the whole scheme as impracticable. On the other hand boards in charge of training schools were equally inclined to criticise hospitals and to assert that if the management of them could be committed to the training schools, the care of the sick would thereby be much facilitated, and all administrative difficulties would disappear. We hear such statements from excellent women even at this day. I do not complain of the spirit of antagonism between training schools and hospitals —it was inevitable—and I only mention it to show why after a time it became absolutely essential that the school and the hospital should be more closely related. The jealousies, antagonisms and needless criticisms which hampered the work of both hospital and training school finally led a wise and far-seeing medical man, Dr. Edward Cowles, then superintendent of the Boston City Hospital, to organize a training school in that Hospital, under its control and not under a separate board of lady managers. The advantages of such identity between the school and the Hospital proved so great that it has become the ordinary relation between hospitals and training schools; the training school being now considered an indispensable and integral part of every hospital.

Of the early training schools which I mentioned in the beginning of this address, but one remains in a state of single blessedness. The rest have been wooed and won by hospitals. The Illinois Training School connected for a quarter of a century or more with hospitals in the city of Chicago, has been under the control of a wise and liberal board of lady managers from its organization, and has maintained its autonomy. I predict, however, that the time will come when its management will see the importance of a closer relation than that of friendship with a good hospital to secure greater opportunities for the school and greater efficiency in its work.

It is not strange that the mutual advantages of a union between the training school and the hospital have been apparent in every city where it has been tried. An organic relation has brought about a good understanding between the management of the hospital and the superintendent of the training school so that the latter has been responsible for the selection of nurses and the hospital has appointed them. It has afforded better opportunities for training because the work has been carried on through the mutual efforts of the superintendent of the hospital and the superintendent of the training school. Pupil nurses have not found themselves in the hospital as a matter of privilege exposed to the criticism of unfriendly medical men but have become a part of the hospital machinery. Consequently the nurse has a better standing and larger opportunity to secure a thorough efficient training. This better relation between the two has also brought a recognition of the duty of the hospital to train its nurses and thus to contribute materially to the welfare of the community and to the health of the whole city.

In the vast majority of general hospitals, therefore, and in such other hospitals as are not under the control of religious orders the training school for nurses has become an integral part of the hospital and receives the same recognition as any other portion of the hospital. In fact in many hospitals it is conceded that the mission of the hospital is not only to take care of the sick, and to promote the training of medical men in its wards as internes, but also to

* Read at the graduating exercises of the Massachusetts General Hospital Training School for Nurses, January 15, 1914.

foster the training of young women as nurses. For the future there seems no reason why the training school and hospital authorities everywhere through the country should not walk hand in hand in an effort to promote the better training of nurses and better care of patients.

While I would not seek to minimize the great advantage to the training school and to the hospital of this mutual relation, candor compels me to acknowledge that the union of the two has not at all times and in all places been an unalloyed benefit, and it is not now. I cannot disregard the patent fact that many small hospitals and special hospitals have taken advantage of this relation to exploit the training school for the benefit of the hospital. Such exploitation has generally occurred because of the discovery that a training school for nurses was a valuable asset to a hospital. It not only advertised the hospital as better than one which did not possess a training school, but also enabled the proprietor of the small special hospital often times to procure a nursing service at a cheaper rate than would be possible in any other manner. This has led to the organization of training schools in many hospitals where a training school ought not under any circumstances to exist. Take a single example, and there are many such, of a small hospital interested solely in the surgical diseases of women, owned and operated as a private enterprise. Such a hospital in the interest of nursing has no right to organize a training school. After a period of special service the nurses graduate and become so-called trained nurses in the community to encounter active and acute diseases with which they have had no experience and to cope with the emergencies which may arise in the treatment of such cases. This has been done I am sorry to say in too many instances with the effect to lower the standard of nursing and has led to an imperfect fulfilment of the duty which the hospital owes to the pupil nurse in a variety of ways. It is unjust to the nurse and a fraud upon the public. Practical nursing has not been well taught because the special hospital has not had material enough to permit the nurse to receive instruction in the various branches of nursing.

It soon became apparent to those who were thus conducting special hospital training schools that the best women did not care to come to them for training, because they were not eligible to registration under the laws of states in which the duty of the public toward well-educated nurses had been scrupulously considered. It consequently became necessary for special hospitals, in order to carry out their original plan to train pupil nurses, to accept persons for training whose educational qualifications fell below the proper standard. The result has been the graduation of many persons not fitted by education or training to assume the duties which naturally devolve upon a trained nurse. In many instances nurses not old enough to commence training, who had not received sufficient education prior to entering upon the study of nursing, after an inferior course of study were sent out to serve the community with imperfect ideals as to nursing and an inadequate training in its different branches. This has discouraged applications on the part of capable women who in the better schools must spend three years of their time to secure training in a good hospital in addition to several years already spent in procuring a preliminary education. These women, superior women, I think we can call them without flattery, are unwilling to spend time and effort in the arduous labors of a training school of the higher grade to find themselves as graduate nurses in unfair competition with imperfectly educated women, with aims and ideals far below those of a well educated nurse. This is the reason why we hear complaints that hospitals find it difficult to procure pupil nurses for their training schools. I have already alluded to the attempt which has been made in some quarters to meet the difficulty by lowering the standard of educational requirements for nurses. It has even gone beyond this. Not only has the educational standard been lowered but the age and health of those selected for training have often not been considered, until finally there is danger that the educated nurse will not be fit either physically or by age as well as by education to assume her difficult and trying duties. Many persons seem to forget, or at least to lose sight of the fact that the training school for nurses is a school, that pupil nurses should be treated in all respects as students in other schools and admitted to courses of training only when they are fitted to enter upon the study of nursing. The training school is an educational institution connected with a hospital, precisely as a medical school is a school similarly connected with a hospital, and neither of them can be treated as an economic device to secure cheaper nurses and cheaper medical men. A moral compulsion consequently ought to be exercised on all hospitals both from without and within to establish and maintain good training schools with proper educational standards in the interest of better nursing, rather than in the interest of economy to the hospital. The best hospitals do not always take perfect care of their patients, nor do the best training schools always turn out perfect nurses. They do the best they can with the best persons attainable. Hospitals for their own good and that of the state and the public cannot afford to foster the production of inferior nurses simply because they are more easily procured and less costly to train. Such schools are not cheap in the long run, nor do they permanently benefit the hospital, because they ultimately prevent the best women from entering the profession of nursing.

An entrance requirement therefore would seem essential for every pupil nurse. The hospital has a right and duty to fix an educational entrance requirement as much as a health requirement, and in its turn should give a good,

thorough honest course of instruction. To attempt to get something for nothing is an economic error which sooner or later will destroy all ideals of nursing and lower the standards of all training schools. The interests of the hospital and of the school are identical. Every pupil nurse has a right to a first-class training, and every hospital has an equal right to expect that women of education and refinement will apply for appointments as pupil nurses and will avail themselves of the opportunities afforded by a proper training school. I am persuaded in fact that every training school which has a good preliminary educational requirement and gives pupil nurses reasonable hours of labor with due recognition of the severity of the work, and a thorough and sensible course of instruction will not lack for pupil nurses. I repeat that they will not lack for nurses if proper attention is paid to the health, welfare and education of pupil nurses, because it is evident to all who have anything to do with training schools that educated women of the right stamp are as anxious to enter the profession as ever. Many have been deterred from doing so by the fact that the well educated nurse after years of study and training, found herself obliged to compete with nurses who had not received similar advantages. She had no protection from half-educated or unscrupulous competitors.

After much thought, I have come to the conclusion that every hospital should educate two classes of attendants upon the sick, one to be known as trained nurses and the other as trained attendants. The trained nurse should be guaranteed her proper position as a nurse under a state registration and the right to maintain her privileges by an appeal to the courts if need be. The semi-trained nurse should be called an attendant upon the sick, her duties, privileges and right should equally be fixed by law. In the U. S. Army medical corps the surgeon is never confounded with the hospital steward, nor do we find the hospital steward arrogating to himself the duties and responsibilities of the army surgeon. Similarly in the world at large as at the hospital, the trained nurse should occupy a higher position and be in no danger of competition from the untrained woman. The key to the whole situation is an adequate registration law for nurses.

The laws of every state should recognize the legal status of the nurse earned by virtue of the hard work which she has done and should protect her in her rights. This is not trade unionism as some people claim, but simple justice and it is the duty of hospital men to make every effort to supply this protection to nurses who have come to us in good faith and who have done their duty thoroughly and conscientiously for three years. Hospitals or individuals should not allow considerations of economy to impair faithful work.

When in an adjoining state the superintendents of prominent hospitals in a communication to the State Department of Education expressed the conviction that it was essential to lower the standard of educational requirements for nurses in order to educate nurses for the service of the public, one cannot help feeling that they acted hastily and without fully appreciating the consequences of their act.

The lack of nurses complained of by these gentlemen was more the lack of pupil nurses in the hospitals than of trained nurses in the community at large. There is in fact little scarcity of trained nurses in any community. There may be a scarcity of good nurses simply because the profession of nursing has been flooded with nurses of insufficient education, who had been accepted for training on similar pleas or turned out from correspondence schools. If those who are thus charitably interested in supplying nurses to the public will call to mind the large numbers of nurses ready in every city to serve the public but finding difficulty in getting cases, they must confess that the lack of nurses of which they complain cannot be a crying evil. Nurses ought to be protected in the rights which they have earned for themselves precisely as physicians and lawyers are protected. Physicians cannot practice unless they have had a certain degree of education and can fulfill certain professional and educational requirements. A lawyer is not admitted to the bar until he can show that he has spent a specified time in the study of his profession and has done a prescribed amount of work. In Maryland undertakers and barbers even are required to be examined and licensed. Similar care should be taken to supply to the trained nurse the protection of the law. To this I may add a statement which has doubtless occurred many times to all of you. The welfare of both hospital and nursing profession alike is irrevocably bound together. The hospital cannot do its work thoroughly and meet the requirements of the modern hospital treatment of the sick without the help of the trained nurse. Trained nurses on the other hand cannot receive their proper instruction except in a general hospital and in a training school managed and controlled by the hospital authorities.

The time is past, far past I hope, when any one can propose that the training school should be divorced from the hospital and placed as formerly under the control of a separate organization. I go farther than this, in fact, because I believe in order that nurses may enter upon the higher education which now seems to be required by every nurse, to fit her for calls to better and larger service, it is essential that higher schools of instruction also be connected organically with hospitals. The good work of Teachers College in New York needs to be supplemented by a closer connection with a hospital. The incentive to education which comes with the grouping together of large bodies of young women in the training school and in the hospital wards must not be overlooked. Trained nurses have

done much for hospitals and hospitals in turn have done much for nurses. It is impossible for any one to "assess" the mutual benefits, to use a legal phrase.

I now come to the most pleasing duty of my address (I do not allude to giving advice) and I feel it not so much a duty as a pleasure to welcome you as nurses to the great band of nurses who have gone before you. The leaders of this band who obtained their education twenty-five or thirty years ago, were few in number but mighty in faith and the onward march of those who have followed them in constantly increasing numbers has justified the correctness of their vision. Numbered at first by tens and by scores, they now see their successors numbered by thousands.

I congratulate you upon the completion of your chosen work. You have labored long and zealously and have attained the honor for which you have striven. A diploma is not much in itself, a mere piece of parchment with some stately unfamiliar words written or printed upon it. It is related that Thoreau the naturalist once in writing of the diploma which he had received from Harvard University, uttered the bitter gibe "In future let every sheep keep his own skin; I wish none of it," and so he might if the sheepshin or parchment constituted the whole of the diploma. It is not the parchment itself, after all which you prize but it is what it signifies. Ingersoll once said that a bill of fare is not a dinner. True enough, but it may be the *promise* of a dinner just as this piece of parchment gives promise of an educated nurse, of one who by study and toil and training of the head, hand, mind and heart has fitted herself to undertake the most serious of all callings. I always enjoy reading the vigorous outline which Florence Nightingale gave of her conception of what a nurse ought to be. She believed that the object of training was to teach not only what was to be done but how to do it. The physician or surgeon should order whatever needs to be done for the patient's care, but the training of the nurse should teach her how to do it to his order. Training must also teach the symptoms of disease so that the nurse may know what certain symptoms indicate about any disease and whether the patient is worse or better when the symptoms change. *Telling the nurse what to do* is not enough and cannot be enough to make her work perfect. To use Miss Nightingale's words, "The trained power of attending to one's own impressions made by one's own senses, so that these should tell the nurse how the patient is, is the *sine qua non* of being a nurse at all." It is not sufficient to use "the sense you have got." The nurse's eye and ear, her smell and touch and even her taste are all to be trained and all may be as necessary to the welfare of her patient as her head. The nurse should be trained to observe, in fact her powers of observation require training. As Miss Nightingale says "Merely looking at the sick is not observing. To look is not always to see. It needs a high degree of training to look, so that looking shall tell the nurse aright, so that she may tell the medical officer aright, what has happened in his absence. Observation tells the nurse how the patient is, reflection tells what is to be done; training tells how it is to be done. Training and experience are of course necessary to teach us too, how to observe, what to observe, how to think, what to think. Observation tells us the fact; reflection the meaning of the fact. Reflection needs training as much as observation." These terse sentences go to the root of the whole theory upon which she wrought in her training of nurses.

In the light of her illuminating words how trivial and childish appear the objections which we hear to the so-called over-educated and overtrained nurse and the laudation heard even now in the year of Our Lord 1914, of the natural born nurse who "mothers" her patients, who needs no training and who only follows her heaven-born impulses and her womanly intuitions.

The first and foremost ideal in the mind of every one is clearly that of self-sacrifice. In your chosen calling you subordinate inclination to duty and become absorbed in the development of a purpose of personal service. This motive consecrates your work and gives it a human touch. Nursing without it is mechanical; with it you become transformed into ministers of mercy and find the fullest scope for enthusiasm and self-devotion.

Another ideal allied to it which is developing rapidly is that of helpfulness to the community. We find trained nurses now in great demand as school nurses, tuberculosis nurses, visiting nurses orthopedic nurses, and mothers'-relief nurses, nurses in charge of milk stations, social service workers and settlement nurses. Those who enter upon work of this character do so at much sacrifice of money and personal comfort. They could do "better for themselves," to use a popular phrase, if they devoted their time to private nursing, but they cannot disregard the call of the common weal and they forsake ease and the call of a good time to carry the gospel of health to the ignorant, the poor and the suffering. All praise to them! They are practically paying the debt which we all owe to the suffering poor. We owe it but they pay it.

There are compensations to the nurse for her life of self-sacrifice and her spirit of helpfulness. She becomes self-reliant and gains a mental poise, a breadth of sympathy and steadiness of purpose which are granted to but few. I need not urge you to cherish these ideals and cultivate their growth.

In receiving your training you have acquired new ideals of life and of personal service. You have the *esprit de corps* of your chosen profession. This represents a body of sentiment which has been growing in your minds for three laborious, but I trust, happy, years—somewhat, possibly as a result of the traditions which you have

inherited from those who have gone before you but unquestionably much more because of the growth and development of your own hearts, minds and characters during training. You have caught the spirit and received the baptism of new emotions, ideals and aspirations. I welcome you to the profession of nursing and I bid you God speed.

Original Articles.

THE RELATIONSHIP BETWEEN EPILEPSY AND MIGRAINE.*

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EPILEPSY resembles migraine in many of its aspects. Both occur with great frequency as a direct inheritance from the family of either parent. Both recur with more or less periodicity in the individual. On the one hand the picture is that of an explosion of motor energy; on the other that of an explosion of sensory energy.

Each may be preceded by an aura referable to a disturbance in a definite cortical area. Although the aura of migraine presents the visual type in the form of scotoma and hemianopsia, while epilepsy commonly exhibits the pneumogastric aura, or the sensory or motor disturbance of the arm, face or leg; nevertheless, we may on the other hand have the migraine attack ushered in by paraesthesia of the arm, lip and tongue (with or without aphasia), while epilepsy may be preceded by visual disturbance, as dimness of vision or scotoma.

Not only may the same sort of an aura introduce an attack of epilepsy or migraine in different individuals, but in both diseases the warning may make its appearance independently without being followed by an attack. Just as in epilepsy the numbness of the hand or twitching of the fingers may come daily or several times a day over varying periods of time, only to be followed by the convulsive seizure at intervals of weeks, in the same way in a subject suffering from migraine attacks every few weeks preceded by scintillating scotoma, I have seen the appearance of daily attacks of the scotoma alone, over periods of weeks, each attack lasting from twenty to forty minutes.

The occurrence of psychic symptoms associated with the attack of migraine or epilepsy has been described by various authors; and indeed the attack in either disease may be replaced by a psychic equivalent.

Another common symptom frequently met with in both epilepsy and migraine is somnolence. It is astonishng to see a patient suffering intensely from hemicrania sleep soundly for a number of hours in the midst of the attack; and frequently attacks which come on during the day will disappear during sleep at night time. Just as somnolence appears often as part of the disease in migraine, so it may manifest itself in attacks of epilepsy, not as a result of exhaustion, but as a symptom of the disease. The following two cases are cited as illustrative of this rather than as being unusual in any way:

A boy of ten years, whose mother has suffered from periodical sick headaches since childhood, has had attacks for two years, in which there is a sensation of gas in the stomach lasting one or two seconds. When these come on he runs to his mother, saying he is afraid, and grasps her tightly, crying out "Don't let them hurt me!" or similar expressions. The pupils are dilated, the face congested and saliva drools from the mouth. The patient does not reply to questions, and after exhibiting these symptoms two or three minutes goes into a sound sleep for half an hour to an hour. Sometimes the pneumogastric aura is followed by convulsions.

A man of twenty-four years whose mother has periodical headaches lasting all day two or three times a year, has suffered for eight years from attacks of severe headaches, which always come in the left temple, recurring at intervals of eight or ten months. Each attack is ushered in by right hemianopsia, immediately followed by numbness of the right hand and wrist and right corner of the mouth, together with aphasia. This condition lasts half an hour, during which time the patient can walk around and understand conversation, but cannot speak. At the end of a half-hour dull headache in the left temple, associated with drowsy feeling and stupor appears, which, at the end of another half an hour, terminates with vomiting. If he can lie down and sleep when the aura begins, he awakes in less than an hour without discomfort.

The foregoing characteristics are only illustrative of points of *similarity* existing between the two diseases. There are however certain points of *relationship* which exist between them.

It is not the object of this paper to discuss the pathology of the two diseases in question. As is well known, various hypotheses have been advanced to account for the cause of the attacks in the two neuroses. None however can be accepted as generally true for all cases, and in comparing the two diseases we are forced to depend in accepting the diagnosis of migraine or epilepsy on the clinical picture presented. The features indicative of a relationship between epilepsy and migraine may be classed under the following heads;

(1) The interchange of one disease for the other in different generations of the same family.

(2) The appearance of migraine in early life, giving place to epilepsy later, with a resulting disappearance of the migraine or diminution of the intensity of the migraine attacks. In these

* Read at a meeting of the Boston Society of Psychiatry and Neurology, November 20, 1913.

cases the epileptic seizures may be ushered in by the same aura which gave warning of the earlier attacks of migraine.

(3) The development of migraine attacks in patients previously suffering from epilepsy, and in whom the epilepsy has been cured by bromide treatment.

(4) The appearance of symptoms of epilepsy in migraine attacks of certain individuals.

The interchange between epilepsy and migraine in different members or different generations of the same family has been remarked upon by various authors, as being significant in the consideration of the relationship of the two diseases.

Kovalevski found of the various hereditary diseases in the histories of patients suffering from migraine, that epilepsy occupies first place.

Bourneville found that migraine was present in the relatives of 24 per cent. of his cases of epilepsy.

Dejerine on analysis of Bourneville's cases found that in 250 epileptics 51.6 per cent. showed alcoholism, 24.5 per cent. migraine, and 21.2 per cent. showed epilepsy in the ancestors.

Féré, showed that in 108 cases of epilepsy, the father had migraine in 88 instances, and the mother had migraine in 116 instances. He further showed that out of 206 epileptic women, 40 had children who were affected with migraine.

Ulrich found that in five hundred cases of migraine 99 (or 20 per cent.) showed a direct or indirect relationship to epilepsy. In about 8 per cent. there was epilepsy in the relatives of the patients; in about 12 per cent. migraine and epilepsy occurred in the same individual.

The fact that attacks of epilepsy and migraine sometimes alternate with more or less regularity in the same person, may be due to the coincidence that the patient is suffering from the two diseases. For it would not be strange that two diseases so commonly found thriving on neuropathic soil should at times afflict the same individual. But substitution of one disease for the other in a person, or the occurrence of symptoms common to both diseases in an attack must indicate relationship. The occurrence of migraine in the early years of life of individuals giving place to epilepsy in the later years was first described by Liveing in 1873.

He cites the case of a woman of thirty-seven years, suffering from epileptic fits. The patient's brother and sister were both epileptic, though there was no history of the disease in either parent. The patient suffered from the age of twelve with sick headaches, coming chiefly at the menstrual period. These were frequently preceded by a visual aura of dim vision and numbness of the fingers. At the age of thirty-five the headaches stopped and were replaced by epileptic seizures, which also came at the time of the catamenia.

Liveing quotes another similar case, and follows it by a number of instances showing the connection between these two diseases, collected from the literature of the times.

Krafft-Ebing reports a case in which the epileptic attack ends in a hemicrania.

A woman of twenty-six years, whose mother and sister had suffered from hemicrania, had been subject since puberty to attacks of premenstrual migraine with scintillating scotoma. Two years previous to the time he first saw her, she had been observed to manifest a lapse of consciousness, which lasted about ten minutes, that is, as long as the scotoma had continued, during which time she made inarticulate noises and did not respond to questions. At the end of ten minutes, the patient regained consciousness, suffering from hemicrania, but was amnesic to all events which transpired during the disturbance of consciousness. Five months later she had her first epileptic attack during sleep, and when the convulsions had ceased she came to herself with her usual headache. Since that time the epileptic attacks have come always at night and are always followed by hemicrania.

Spiller reports two cases of patients who had had migraine since early life, in whom symptoms of abortive forms of epilepsy made their appearance later.

Gowers reports the case of a woman aged thirty-two years, who, at the age of eight years became subject to periodical headaches, which were preceded by dimness of sight, and usually ended after some hours with vomiting. They continued until the age of thirty years, when she became subject to epileptic fits. The headaches ceased entirely when the epilepsy began, and remained absent until she came under treatment. While under treatment the fits were arrested, but the headaches returned with greater severity than ever.

Turner cites the case of a man of thirty-six years, whose father was a confirmed epileptic and whose sister suffered from paroxysmal headaches. The patient had epileptic fits from the age of sixteen to twenty-five years, when they ceased and gave place to attacks of paroxysmal headaches, coming on in the early morning, lasting about three hours, and recurring every week or ten days.

Flateau in his recent monograph on migraine reports the case of a woman thirty-four years old, whose mother and sister had suffered from migraine, and who at the age of 17 had severe attacks of headache lasting two days. When menstruation began the headache attacks increased in severity. During the last three years before Flateau saw her she had developed typical epilepsy, and the headaches had ceased.

The following case was recently seen by the writer at the Massachusetts General Hospital.

She was a woman of twenty-seven who had been subject to periodical headaches from early childhood up to the age of nineteen. These headaches were preceded by blurring of vision, and were associated with vomiting. Her great grandmother suffered from paroxysmal headaches, but otherwise her family presented no history of epilepsy or migraine.

At the age of nineteen the attacks of headache ceased and were replaced by dream-like periods lasting several minutes, during which the patient was unable to move and could not reply to questions. In these periods the patient says there is a train of thought that she cannot afterwards recall. During the past year these attacks have given place to typical epileptic convulsions, recurring every two weeks in which the patient usually hurts herself in the fall, and has bitten her tongue. By the advice of her doctor she was recently married in the hope of thereby curing the attacks.

Hemianopsia as an aura in epilepsy is of rare occurrence. Gowers maintains that it never occurs, but as is well known, it is frequently seen as the first stage in an attack of ophthalmic migraine. The following case observed by the writer illustrates the fact that it may occur as an aura of epilepsy, and so closely does it conform to the migraine type of hemianopsia in its character and long duration before the attacks that it strongly suggests a relationship between the two diseases.

A man of thirty-four has had attacks of epilepsy since the age ot eighteen. There is no history of epilepsy in his parents or in their immediate relatives, except that his mother's father who was alcoholic had convulsions in late life. The patient has one brother and three sisters, one of whom has severe headaches periodically, which are not, however, associated with eye symptoms.

The patient has had convulsive attacks since the age of eighteen, coming four or five times a year. These are always preceded by a right hemianopsia. The loss of vision begins on the right side and extends inward until it reaches the median line in the course of one or two minutes, and at the same time there may be flashes over the blind field after the hemianopsia is well established. The hemianopsia lasts from fifteen to thirty minutes before unconsciousness sets in. This delay usually enables the man to reach home from his office before the convulsions begin. The loss of consciousness is immediately followed by general convulsions, lasting several minutes, after which he lies in a heavy sleep two or three hours, and awakens with a heavy feeling head and is lame all over for from one to three days. The attacks persist with the same frequency in spite of liberal doses of bromide and careful regulation of the general condition.

From the age of ten to eighteen years this patient had severe headaches two or three times a month which came on during the day or night and lasted three to five hours. The pain was across the forehead, never limited to one side of the head, and was never preceded by scotoma or hemianopsia, nor followed by vomiting.

Krafft-Ebing, Savage, Féré, and Cornu have shown that in certain cases where epilepsy attacks have been cured by the bromide treatment, migraine may develop as a substitute, and Flateau asserts that his experience corroborates this.

The following case, a patient who has been under the observation of the writer for five years, will illustrate this point.

He was a boy of 14 years when first seen in May, 1908. There is no history of epilepsy or migraine in either parent or in their families. At the age of two, while teething, he had a convulsion lasting five minutes. At the age of three, while feverish with bronchitis, he had a second convulsion lasting five minutes. A third convulsion was at the age of six, and the fourth at the age of eleven. For the three years previous to the time he was seen by me, he had had convulsions every three to six months, mostly in the morning before getting up. The attacks were of a typical form of major epilepsy. He had led his class at school in studies, and excelled in athletics. Under treatment of regulation of diet and moderate doses of bromide the attacks ceased. Three years later however, while still under treatment, he had an attack which he described as follows:

"On the 28th of April at eleven a. m. I was suddenly seized with a dimness of vision which lasted twenty minutes, at the end of this time I could see as well as ever, but the instant the dimness left I felt a drawing sensation at the tip end of the thumb of my left hand for a space of two minutes. This sensation passed from one finger to the other in the order of the fingers and up into the hand, the little finger receiving the strongest drawing. I then felt the same sensation half way up the left arm and in the upper lip and roof of the mouth on the left side of the face, all of which passed away in two or three minutes, and was followed by dull headaches over the eyes."

During the next two years these attacks were repeated at intervals of three to six months, and not until recently did the convulsions return, when the patient became lax in following his treatment.

That the headache attack with its visual and paraesthetic aura which replaced the convulsion, was not an abortive form of epilepsy seems probable, since it presents the clinical picture of migraine. As is well known, the aura of migraine lasts over a prolonged period of time, while that of epilepsy precedes the attack by only a short interval.

This case is interesting in connection with one reported by Féré in his book on "Les Épilepsies et les Épileptiques," written in 1890.

A woman of fifty-four years while writing a letter suddenly felt a severe pain over the right eye, and "the flickering lights of a thousand candles" appeared on the right side of her field of vision. So severe and sudden was the pain that she thought some one had thrown a stone at her, and on going to the door to see who had done it, met her husband, and was surprised to find she could not see the left half of his face. When she tried to explain to him her condition, she was unable to manage her tongue, or to articulate her words. She then felt her fingers and thumb of the left side flex on the palm with a pain extending up the forearm, and the whole arm was raised to the height of the shoulder, while the face was turned toward the right and the lips were seized with convulsive twitchings. These convulsive movements lasted only a minute, but the headache, hemianopsia and aphasia persisted for fifteen minutes. At later intervals there were five recurrences of similar attacks, and when bromide treatment was instituted the convulsive attacks no

longer appeared; only the pain, scintillating scotoma, and hemianopsia remained.

The occurrence of migraine attacks and epileptic seizures in the same individual and ushered in by the same visual aura has been described by various authors. The following case, observed by the writer, is an excellent illustration of this phenomenon:

A man thirty-seven years old, a tanner by trade, gave a history of migraine in both parents: the mother had periodic sick headaches as a girl, but outgrew them in middle life; the father has had periodic occipital headaches of great severity, associated with vomiting, ever since he can remember. There was no history of epilepsy in the family.

The patient had periodic headaches with nausea and vomiting as a boy, which continued until he was eighteen, none of them being associated with visual disturbance.

About three years previous to the time he was seen by the writer, he began to have left supraorbital headaches, preceded by flickering scotoma, but not associated with nausea or vomiting. He had forty or fifty of these attacks during the three years, always coming on in the day-time and lasting a number of hours. His scotoma consisted of a luminous spot before the eyes, which contracted and expanded like the opening and closing of a butterfly's wings.

About two years previous to his first visit, he one day had a violent attack of the scotoma, and lay down on a couch, asking a companion to get him a glass of water from the next room. The last thing he remembered was that the furniture in the room appeared to be jumping up and down with the flickering of his scotoma. When his companion returned with the water the patient was found on the floor in a general convulsion.

Two similar attacks occurred later at intervals of about six months—one in a barber's chair, the other while driving.

The writer was called in consultation to see this patient, who was suspected to be suffering from a brain tumor. Three days previously he had been found in bed in the morning suffering from intense frontal headache. This had persisted since and had required hypodermic injections of morphine. There had been occasional attacks of vomiting during this time. The patient had been much run down during the previous months with overwork and domestic worries.

The physical examination showed a well-developed man. The pupils were equal and reacted well. Ophthalmoscopic examination was negative. There was no impairment of any of the cranial nerves. The reflexes were normal. There was no Babinski. The temperature was 98.6, the pulse 45, and blood pressure 130.

For many days preceding the onset of this severe and prolonged headache, and for several weeks following it, there were daily attacks of the flickering scotoma lasting a few seconds, sometimes occurring two or three times a day; and a subsequent examination of the visual fields by Dr. George Derby revealed a homonymous scotoma still persisting.

The persistence of a scotoma of this sort would raise the question as to the existence of a permanent organic lesion of the brain, which might account for the appearance of the convulsive attacks. Cases have been described however, in which the scotoma may continue for a long time after the attacks of ophthalmic migraine. Inasmuch as we often find patients suffering from ophthalmic migraine exhibiting at one time the scotoma followed by the headache, and at another time accompanied by a headache, just as the aura which precedes epilepsy may be followed by the convulsion or occur independently, it is difficult to say whether the above patient's minor attacks should be considered as attacks of aborted epilepsy or migrainous scotoma.

The appearance of symptoms of epilepsy and migraine in the same attack of an individual has been noted by various observers.

Tissot in 1780 wrote that he had very often seen convulsive movements of the forehead, eyelids and face muscles, associated with migraine, and that sometimes the convulsions involved the entire body.

He described the case of a girl of twelve, who together with the hemicrania attack felt a numbness in the little finger of the same side, which spread successively to the other fingers, the forearm, upper arm and neck with occasionally a spasmodic retraction of the head and spasm of the jaws. There was no loss of consciousness, but the attack was followed by vomiting.

Parry in 1825, wrote that he had seen instances of obfuscation of sight lasting many hours after an epileptic fit, from which the patient was otherwise fully recovered. In his case it was only the perpendicular half of the object that could be seen.

Price reports the case of a patient, twenty-one years old, whose father suffered from attacks of severe headache, preceded by blindness for a few seconds, and then by numbness of the arms, tongue and lips. The father also had two sisters afflicted with migraine. Six out of seven of the patient's brothers and sisters also had migrainous attacks, and in three of them the headaches were associated with numbness or weakness of one half of the body. The patient had had paroxysmal headaches since he was six years old, coming several times a year and occasionally preceded by numbness of the right side of the body. This paresthesia began in the toes and crept up, affecting in succession the leg, arm, trunk, face and tongue, being felt most markedly in the hand and foot and but slightly over half the trunk. At times he had been unable to control the affected arm and leg during the attack. The paresthesia lasted from twenty minutes to an hour, and was followed by severe hemicrania on the side of the head opposite the numbness, lasting from twelve hours to three days. Other attacks were preceded by blurring of vision and hemianopsia. In a "light attack" seen by Price, the face was pale, the lips cyanotic and the speech thick; while occasional twitchings of all four extremities were noted, the arms flexing at the elbows, and the thighs adducting.

That epilepsy is related to migraine is still denied by certain men who have written on the subject, although the majority of the authorities accept the fact.

Liveing in his early work on migraine published in 1873, recognized the relationship between epilepsy and migraine. He writes, "Epilepsy is doubtless the neurosis which exhibits the closest connection with megrim, both in the occasional replacement of the one affection by the other, and also in the occurrence of cases of character intermediate between the two."

Féré says that epilepsy is among the frequent accompaniments of ophthalmic migraine, especially partial epilepsy. Ophthalmic migraine may develop in a person who has previously had partial epilepsy and still has attacks of paraesthesia in the side of the body in which the epileptic movements occurred. He also speaks of cases in which migraine may precede epilepsy, or the two may occur together, or in which the migraine may become less severe after the epilepsy has made its appearance.

Wernicke in 1881, maintained that migraine is not infrequently complicated with certain phenomena of epilepsy, and may appear as a forerunner of epileptic attacks.

Kovalevski calls attention to the substitution of one neurosis for the other. Epstein regards migraine as the equivalent of epilepsy in some cases. Cornu maintains that one neurosis may be transformed into the other. Charcot and Krafft-Ebing maintain that when scintillating scotoma appears in an epileptic attack it is related to migraine. Oppenheim writes that migraine sometimes, though rarely, develops into epilepsy.

Turner, in his book on epilepsy, states that he has observed a relationship between epilepsy and migraine in 4.3 per cent. of his cases. This relationship manifested itself in one of the four following ways:

(a) Periodic headaches in one parent, and epilepsy in the off-spring, and vice versa.

(b) Headaches in early life, replaced by epilepsy in later life.

(c) Epilepsy in early life, replaced by headaches in later life.

(d) Both existing simultaneously in the same individual.

Spratling, in his book on epilepsy, gives but little space to its relationship with migraine. In speaking of the sensory equivalents of epilepsy, he writes "The Migraines also belong to this group. The relationship between these affections and epilepsy has long been in dispute. I believe it is associated with the disease, especially in women, who more frequently show a periodicity in convulsive phenomena than men."

Ulrich recognizes the following conditions to explain the occurrence of epilepsy and migraine in the same patient:

(1) Migraine may exist as a symptom of epilepsy.

(2) Both may develop side by side in an individual, springing from the same low order of nervous development.

(3) Severe migraine attacks may produce convulsions.

(4) Constant recurrence of migraine attacks may lead to the development of true epilepsy.

(5) Migraine attacks may disappear as epilepsy develops, just as they do in the development of grave organic diseases of the brain (dementia paralytica).

Spiller expresses his views on the subject by the following remarks:

1. Attacks of migraine occur with nausea and vomiting; this form is known as simple migraine, and usually remains unaltered during the life of the patient.

2. In other cases visual disturbances (hemianopsia, scintillating scotoma, and amaurosis) are associated with migraines, and the disease is known as ophthalmic migraine.

3. When paralysis of the ocular muscles occurs with the migraine, the disease is described as ophthalmic migraine.

4. Migraine, especially the ophthalmic form, is related to epilepsy, and the attacks of migraine may precede for many years the convulsive attacks of epilepsy, although in most cases of migraine, no convulsions are ever detected.

5. In some cases epilepsy appears in the form of one or more of the disturbances seen occasionally with migraine; and later, even after many years, convulsions develop. The disease may be epilepsy from the beginning. It matters little, with our uncertain knowledge of the pathology of the two diseases whether we regard these as abortive cases of migraine that later become associated with epilepsy, or as abortive forms of epilepsy (sensory epilepsy) in which the convulsions later become apparent, provided we recognize a relation between some forms of migraine and epilepsy.

Flateau in a study of five hundred cases of migraine has observed a relationship to epilepsy in thirty-six cases, or 7.2 per cent. In certain of these cases the attack in the individual manifested itself first as migraine, then as epilepsy of the petit mal type, and finally in later life as convulsive attacks with the epileptic Dämmerzustände.

Among those denying the existence of a relationship between the two neuroses in question the opinions of the following men are to be valued in the light of their wide experience with these diseases:

Gowers writes, "The traces of a definite relation of migraine to epilepsy are slight. In extremely rare instances one affection may develop while the other goes an, and, as we have seen, the same premonitory disturbance may even be at-

tached to each. But such cases are so rare as rather to emphasize the rule to which they form exceptions. When the exceptions are carefully examined, they show that any relation to epilepsy is indirect. Epilepsy develops from migraine as an indirect consequence of the effect of the intense pain, and associated cerebral disturbance. The influence of this may be traced through stupor, sleep, delirium and loss of consciousness, to definite epileptic symptoms."

Hubbell, the ophthalmologist, states that he has questioned three to four hundred patients who were afflicted with ophthalmic migraine, and in not one of them has he found that epilepsy existed in any form, nor was epilepsy described in the antecedents or descendants of the patients.

Strohmayer has often found epilepsy and migraine existing in the same person, the epilepsy usually making its appearance later than the migraine. Substitution of one for the other he has not found. When this appeared to take place the migraine was but a symptom of the epileptic condition, or epilepsy made its appearance as a new element in addition to the migraine. In the atypical cases, the diagnosis between the two diseases may be difficult.

Moebius maintains that migraine is essentially different from epilepsy. Under certain circumstances it may be impossible to say whether migraine or epilepsy exists, as when the aura alone appears. But in such cases it is either one or the other. The difficulty lies only in the inability to recognize which it is. If we put aside the rare cases in which migraine turns into epilepsy, we have only to consider the cases in which epileptic as well as hemicranic symptoms exist. In these cases we are concerned with epilepsy which simulates migraine. As a general rule we can assume that where there are convulsions the case is one of epilepsy. "Migraine symptoms," he says, "are exclusively sensory and I never made a diagnosis of migraine where there is the slightest appearance of convulsions at the corner of the mouth or in the tongue. One can say, that when convulsions appear in an attack it may seem to be migraine but is in reality abortive epilepsy."

Moebius denies for instance that the case of Féré cited above represents a change from epilepsy to migraine, but maintains that it indicates that through bromide treatment the convulsive feature of the attack has been eliminated, leaving what is really an abortive form of epilepsy.

That the attacks similar to that reported by Price, and described in the foregoing pages of this paper, should be relegated to the province of epilepsy according to the claims of Moebius, on account of the twitching spasms of the limbs, seems arbitrary, inasmuch as the clinical picture is that of migraine; for we must admit that paraesthesia of long duration is an aura distinctly characteristic of migraine, as is also hemianopsia, while the absence of loss of consciousness with the prolonged hemicrania, complete the clinical picture.

One cannot review the statistics of various authors which describe the frequent interchange of epilepsy and migraine in different generations of the same family without being convinced that they indicate a definite relation between the two diseases. Nor can one read the histories of the cases described in the earlier pages of this paper in which substitution of one neurosis for the other occurs in the lifetime of the individual without having his conviction of this relationship strengthened.

Moebius in denying that there is a relationship between the two neuroses puts this evidence aside with the statement, "If we regard the rare cases in which migraine turns into epilepsy," while Gowers passes by the importance of this relationship with the statement "If a person subject to migraine becomes liable to epilepsy, the migraine may cease, or become slight or rare, and return if the fits are arrested."

We must also accept in considering the relationship the group of cases in which bromide treatment of epileptic fits changes the clinical picture of the attack from that of epilepsy to that of migraine.

We still are confronted however, with those cases presenting attacks apparently migranoid in character but also associated with convulsive movements. Shall we accept the dictum of Moebius that the presence of convulsive movements must relegate these cases to the domain of epilepsy? It seems to me that since we must accept a relationship between the two neuroses in different generations of the same family and in different attacks of the same person, that surely we may recognize that symptoms of epilepsy in an attack of migraine may indicate the existence of a relationship between the two diseases in that attack, and need not, according to the dictum of Moebius, stamp that attack as essentially epileptic.

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A RADIOGRAPHIC STUDY OF THE MASTOID.

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The following observations were made from a large series of X-ray plates in possession of the Massachusetts Charitable Eye and Ear Infirmary and I wish to thank the various members of the staff for their permission and assistance. In many instances the X-ray interpretations could be verified by operative findings.

The use of the X-ray plate for aid in diagnosis of mastoid conditions is recent and promises to be of great value, especially in differential diagnosis between an acute mastoiditis and an acute exacerbation of a chronic sclerosed mastoid. As a rule, the mastoid picture shows a more minute change in pathology than is shown in that of the accessory nasal sinuses. The reverse is true perhaps of transillumination. For detecting changes in the antrum of Highmore, for example, the transilluminator is more accurate than the X-ray, but in the mastoid the X-ray will differentiate between a congested though cellular mastoid, one whose cells are broken down and one that is sclerosed, while the transillumination of the mastoid simply shows some pathological condition obstructing to different degrees the rays of light.

It is not necessary to go into the details of how the X-ray exposures are made and the plates developed. Suffice it to say that the side of the head to be skiagraphed is laid on the photographic plate with the film side up. Sometimes the auricle is left in its natural position and at other times it is turned forward. The rays are directed through the head from a point posterior to the opposite mastoid, so as to avoid superimposing any dense structures of the head. For this reason the bony external auditory canal is not shown as a distinct oval but more as a mottled area, and other relations are more or less distorted. The more carefully a plate is exposed and developed, the more accurate and easy will be the interpretation. A sclerosed or normal cellular mastoid can be made out in almost the poorest plate but for interpretation of slight pathological changes in acute matoiditis a good plate is an absolute necessity. Plates of both mastoids should be taken in all cases for comparison.

The normal cellular mastoid projection shows the cellular spaces clearly and the thin partitions are clear cut. Anterior to the cellular area is a roughly triangular, dense area which is the petrous portion of the temporal bone. Within this area the bony meatus shows as a less dense and mottled spot. Had the projection been taken in the direction of the auditory canal, the meatus would have been shown as a hole. Anterior to this triangular area is seen the ascending ramus of the jaw and its articulation. The upper border of the triangular area is formed by the zygoma and its projection posteriorly as the linea temporalis. The middle cranial fossa lies above the border. The zygomatic cells, when present, often show projected in and above this border. The antrum in a normal, cellular mastoid is rarely distinguishable from the other cellular spaces. The position of the lateral sinus and sigmoid curve can generally be made out but is not as distinct as in a sclerosed mastoid. As in the latter, the anterior border is more distinct. In a general way, it passes from the upper, posterior part obliquely downward and forward to the bulb which lies under the middle ear. The tip is always seen as a distinct free border. The tip may be more or less solid or filled with cells so as to leave only a shell-like cortex.

Posterior to the sinus is seen the posterior cranial fossa in which lies the cerebellum. The suture lines of the occipital, parietal and mastoid bones often can be seen distinctly. In the young the cellular area is much restricted and the cells are generally smaller than in older individuals. Not unfrequently there is much variation in the size, shape and arrangement of cells in different cases but there is a striking similarity between the two mastoids of the same individual. If there is a small mastoid on one side, the other will be small. If one mastoid has small diploëtic cells, the other has also, or if one has large pneumatic cells, such are found in the other. The outline of the cellular area is generally similar in both. The auricle must be mentioned here, not because we desire its projection, but because its shadow frequently masks or accentuates some border and allowance must be made for it.

The X-ray picture of the mastoid in acute conditions varies as the pathological processes advance. In the majority of cases of acute otitis media the mastoid cells are affected simultaneously, even though the pathological condition be only a participating congestion. In all severe infections the mastoid cells are probably likewise infected, and pus from the mastoid is added to that from the middle ear. In this congestive stage the natural cellular appearance of the mastoid would be preserved with the exception that there would be a loss of definition between the cell spaces and their partitions. In fact the whole plate of the mastoid region shows less penetration to light than the other side. This is the most difficult stage of mastoid inflammation to interpret. Almost perfect plates of both sides, equally exposed and developed, are required. This picture can be simulated by other inflammations and congestions of the surrounding soft parts, most commonly, furunculosis of the external auditory canal. Fortunately, this

stage of mastoid involvement rarely requires surgical intervention.

After six to ten days the picture changes in cases of virulent mastoiditis. There is now seen a distinct blurring of the mastoid structure. The cell partitions are barely made out and there is very little contrast between the cell spaces and their partitions. At the end of this time, actual loss of some cell partitions may be made out. In such a mastoid, the cell spaces would be found filled with pus, the mucous membrane lining swollen and polypoid, and there would be some softening of the bony partitions.

Plates of mastoiditis which has progressed for two, three or four weeks show still different pictures and usually are easy to interpret. At this stage is noted distinctly loss of cell partitions, especially in the tip or in the center over the lateral sinus. Areas less affected by the pathological changes still show blurred cellular structure. Later, well advanced cases may show no cellular structure in any part and may even show cavity formation due to destruction of bone. These mastoids, as found at operation, are very vascular, broken down, and filled with granulations and a little pus.

Perisinous abscess in the central portion of the mastoid is sometimes diagnosed in those cases above spoken of where cavity formation is noticed is that region. Where the bony wall of the sinus and the cellular structure over it has been absorbed by the pathological process, it is conceivable that such a cavity should show in the plate because the rays can thus more easily penetrate that area. A perisinous abscess well posterior, and an extradural abscess, both being partially beyond the limits of the normal cellular mastoid, frequently show up distinctly. The impression is that of a cavity or less dense area surrounded by a dense areola fading off gradually above and posteriorly. A brain abscess has not been observed. Sinus thrombosis is probably not recognizable to any extent. There is no reason to believe that clotted blood has any different effect on the penetration of the rays than fluid blood. The reason for the impression of the lateral sinus on the plate will be spoken of in connection with the sclerosed mastoid.

There are many cases of mastoiditis that never come to operation and, after weeks or months, the majority get well. The X-ray seems to throw some light on what happens to the mastoid in these cases and how nature cures them. It has been mentioned that the cell partitions are absorbed as the process goes on and all the spaces are filled with granulations and the quantity of pus is diminished as the virulence of the infection is gradually overcome. Have we not now a condition similar to that after operation when the mastoid cavity has been cleaned out and later filled with granulations in the process of healing? What happens to the post-operative cavity? Regenerated bone, usually homogeneous, but rarely cellular, fills the cavity as is seen in X-ray plates of old post-operative cases and as is found in operating on cases of recurrent mastoiditis. In the post-operative cases the bone regenerates from the periphery of the cavity and frequently leaves a seam of fibrous tissue directly under the cicatrix of the incision. It is also observed that bone is not regenerated in the area where the sinus was uncovered by operation. With the above clinical and X-ray evidence that post-operative mastoid cavities fill in with granulations followed by regenerated bone, can it be doubted that this same process takes place in an unoperated case cured by nature? A few of these transition cases were found in which the X-ray showed almost a homogeneous shadow and at operation a soft, bleeding, regenerating bone and granulation tissue was found but no pus. If for any reason, as, for example, carious ossicles on a marginal perforation, the antrum and middle ear did not heal as the mastoid was filling in with bone, a chronic suppurative ear would result.

We have considered above what takes place in an adult, fully developed mastoid. Let us now consider what would be the result in babies and young children where there is only an antrum and rarely a few cells budding off. In this group occur a goodly proportion of our acute suppurating ears and it is a well known fact that discharge from a baby's ear is very chronic. When operation is performed the antrum is found filled with granulations. Though the antrum is of about adult size, the mastoid tip and surrounding parts are proportionally smaller and close to one another. The normal antral lining has been destroyed so that as the child grows the budding off of cells will not take place. The bony parts will enlarge some but not in proportion to those filling with cells. The sinus is left nearer the antrum and the groove is deeped in the bony parts. Does not this explain the small, sclerosed mastoid of later life with its ivory like texture and its lateral sinus so close to the posterior wall that easy access to the antrum is impossible? On the other hand, how rarely does a lateral sinus obstruct the surgeon's passage to the antrum in an acute cellular mastoid.

Let us now consider the appearance of the sclerosed mastoid in the X-ray plate. The sclerosed mastoid is the type always seen in cases that have or have had a chronic suppurative middle ear and mastoid. So constant is this relation that with one exception, all cases diagnosed clinically as a chronic suppurative ear showed a sclerosed mastoid. The one exception was a case of atresia of the canal with granulations and foul pus. The mastoid was cellular and the middle ear normal after curing the canal. The reverse, however, is not so constant. Acute exacerbations of a chronic suppurative ear or acute otitis media in an ear which was once a chronic suppurative ear frequently can-

not be differentiated clinically from an acute attack in an otherwise normal ear. Here, the X-ray shows us the past history as represented by a sclerosed mastoid. And again, given an X-ray plate of a sclerosed mastoid, it is practically impossible to detect the presence of an acute inflammation.

In a completely sclerosed mastoid no cells whatever can be seen. The bone looks smooth and dense. The meatus and middle ear are seen as in normal mastoids as a less dense area. Usually the antrum shows as a mottled area just above and posterior to the meatus. The lateral sinus generally shows very distinctly in this type of mastoid. The more dense the sclerosed bone and the longer it has existed, the more distinctly does the sinus stand out. The anterior border of the sinus is generally more distinct than the posterior. In some cases the latter can hardly be defined from the surrounding bone. The sinus shows so clearly in this type of mastoid because of the fact that the sigmoid groove is very deep in the mastoid bone. This makes it easy for the rays to pass through the small amount of bony cortex over the path of the sinus while it is difficult to penetrate the mass of sclerosed bone on the borders. The fact that there is blood in the sinus does not help to make it conspicuous. On the contrary, it would tend to limit the contrast because light can pass less easily through blood. In cases of cellular mastoids, the dense borders are replaced by cells which obstruct the rays very little and this explains the inconspicuousness of the sinus in the normal mastoid. The position of the sinus varies in the different cases and the position in the plate is of some value to the surgeon before operating. One cannot lay a measure on the plate and say that the sinus is just so many millimeters posterior to the posterior wall of the canal. The projection so measured would be deceptive for several reasons. First, the Röntgenologist may have placed the heads at slightly different angles, or the shape of the individual head made this imperative. The course of the sinus not only varies, as seen in a lateral projection, but may be nearer the surface in some cases than in others. The more marked the light penetration over the sinus, the more superficial it must be. The more acute the angle at the knee (junction between sinus proper and sigmoid portion), and at the same time superficial and projected close to the posterior wall, the more troublesome it will prove while excavating a passage to the antrum. In some cases the anterior wall of the sinus can be seen projected over the posterior and inferior portion of the antrum and in such cases the sinus is liable to be uncovered before reaching the antrum.

Some sclerosed mastoids, especially the larger ones, occasionally show a large area about the antrum or extending down toward the center which is less dense and mottled in appearance. At operation such a mastoid is found to be broken down with areas of pus, granulations of cholesteatome. Sometimes a distinct cholesteatome cavity may be seen.

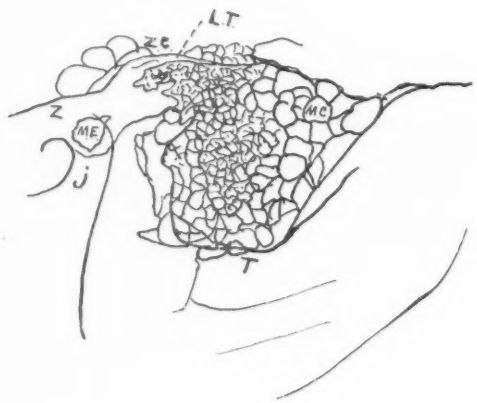
The appearance of the tip of a sclerosed mastoid which dates from infancy is often characteristic. As had been said, the tip cannot be developed by budding cells from the antrum nor can it be filled in by regenerated bone after destruction of the existing cells as in cases in which the sclerosing process started later in life. In these cases the tip is densely sclerosed but has fine wavy lines, as is seen in ivory. This appearance has been interpreted as diploëtic but is not found so at operation. These cases give the best detailed pictures and at times the mastoid vein and foramen is seen and on two occasions the Fallopian canal could be made out. A line of fracture through the mastoid was shown clearly in a plate and later was demonstrated by operation.

There is one type of case that has not yet been spoken of, namely, the so-called effectus ear. By that term is meant any ear which shows by scars or perforation of the drum membrane that there has been a past suppuration. An X-ray plate of such an ear shows all degrees, from a normal cellular mastoid, partly cellular, semi-sclerosed to a completely sclerosed mastoid. the same patient may have a sclerosed mastoid, on one side and a semi-sclerosed or normal mastoid on the other and yet both ear drums are effectus and there is history of past ear trouble. This observation may be easily explained. It is well known that a mild acute ear can cause a scar by rupture of the drum or by having a paracentesis done, suppurate for a short while and then dry up without distinctive involvement of the mastoid and yet be classified as an effectus ear. Had this process gone farther before clearing up there would have been more damage to the drum and the mastoid would have been structurally altered. Partial sclerosis, which always advances from the periphery, would have resulted. The cells remaining were either uninjured cells that escaped the suppuration or a regeneration of cells, the latter having been observed clinically by others. The fact has been known clinically that a discharge existing for years in a chronic suppurative ear may cease and the drum cicatrize and in these cases is to be found the explanation of the sclerosed mastoid seen in an effectus ear. Nothing shows more clearly than X-rays of effectus ears the varying degrees in which suppurations in the middle ear affect the mastoid structure.

The following more detailed statistics may be of interest. The total number of mastoid pictures tabulated was 460. Many others were discarded either because the plates were poor or because of insufficient data. The number of pathological mastoids was about evenly divided between the right and left sides. There were many more sclerosed mastoids on the right side

than on the left but the number of acute mastoids on the left side equalized the division. This coincides with the records of the mastoid operations performed at the Infirmary for the past ten years. Although one side may prevail over the other for a given period, the average is about the same for each side.

In cases where the clinical diagnosis of chronic suppurative ear was made, 94% showed total sclerosis of the mastoid and 6% semi-sclerosis. In the cases where a diagnosis of effectus ear was made, 56% were totally sclerosed, 27% semi-sclerosed, and 17% were cellular or normal. In cases where no diagnosis of a past or present suppurative process was made, 92% had normal mastoids and 8% were sclerosed or semi-sclerosed. 10% of the cases diagnosed as acute suppurative otitis media showed sclerosed or semi-sclerosed mastoids. These represent the cases of acute processes superimposed on an effectus ear, or the acute exacerbation of a chronic ear. These latter are often difficult to differentiate clinically. The conditions found at operation were compared with the clinical and x-ray diagnoses in seventy-five cases.

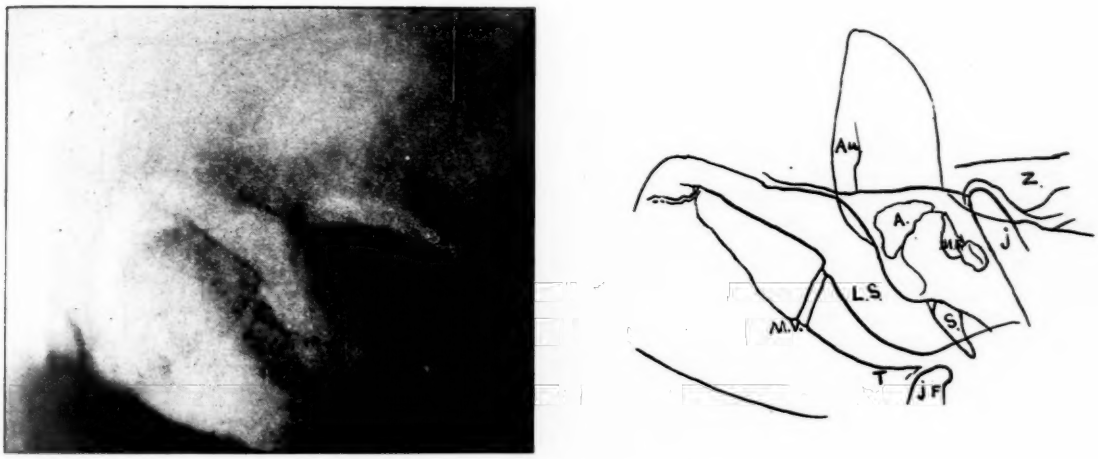


A left normal cellular mastoid. Female. Age 26. The right mastoid was sclerosed from a chronic suppurative ear of 12 years' duration.

M C, mastoid cells. Z C, zygomatic cells. Z, zygoma. ME, middle ear and canal. j, ascending ramus of lower jaw. T, mastoid tip.

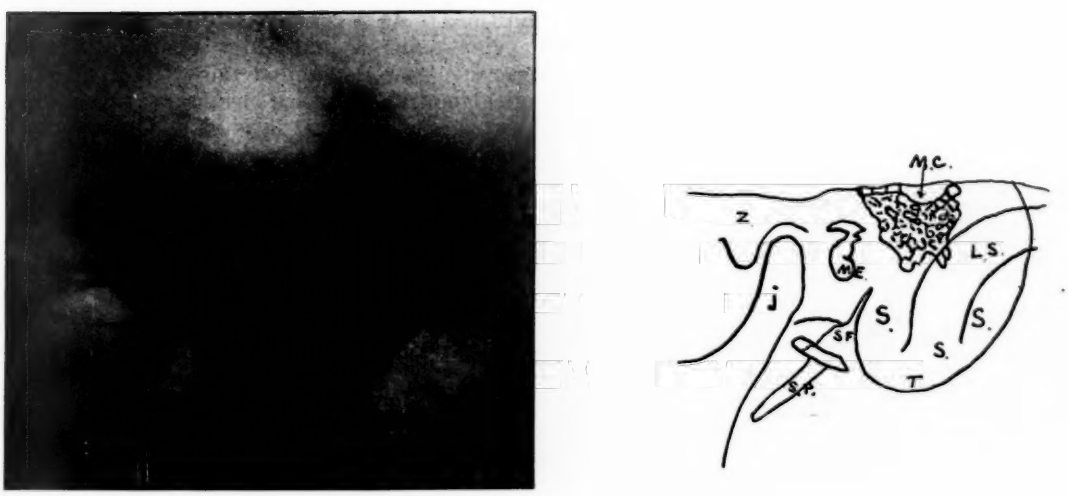
A right acute destructive mastoiditis. Male. Age 48. A discharging ear for two months.

T, remains of mastoid cortex at tip. F, homogeneous area where all cellular structure is replaced by pus and granulations. C, mottled area suggesting some remnants of cellular structure bounded above by the linea temporalis. P A, shadow due to postaural abscess and granulations over the sinus. j, ascending ramus of lower jaw. Au, auricle. At operation there was found a postaural abscess, perforation of the cortex and the mastoid filled with pus and granulations. Some cellular structure was found about the antrum.



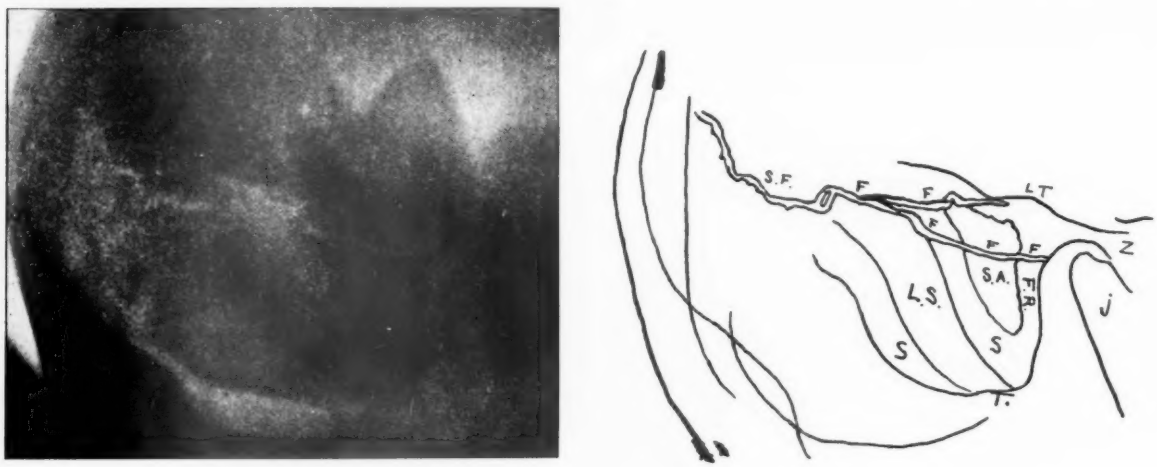
A right sclerosed mastoid. Female. Age 12. The left mastoid was similarly sclerosed and verified at operation. Both ears had discharged since five years of age.

Au, auricle. L S, lateral sinus. S, styloid process. Z, zygoma. j, ascending ramus of lower jaw with the articulation. M E, middle ear. M V, mastoid foramen and vein. T, sclerosed tip. jF, jugular foramen. A, less dense area in sclerosed bone suggesting site of antrum.



A left semi-sclerosed mastoid. Male. Age 50.

M E, middle ear and canal and shadow of maleus. Z, zygoma. j, ascending ramus of lower jaw. M C, remnants of some ill-defined mastoid cells. L S, lateral sinus. Posterior border not distinct. S S S, sclerosed area. The wavy ivory-like structure is visible in the negative. T, mastoid tip. S P, styloid process. S F, stylo-mastoid foramen and Fallopian canal.



A right sclerosed mastoid showing a line of fracture. Male. Age 36. The left ear was an effectus ear and the mastoid sclerosed. The right ear had discharged for three weeks and the patient had a right facial paralysis for that length of time.

F F F, line of fracture from the occipital suture (S F) across the mastoid and facial ridge (F R). S A, softened area in the mastoid. S S, sclerosed area. T, mastoid tip. L S, lateral sinus. L T, linea temporalis. Z, zygoma. j, ascending ramus of jaw. At operation the line of fracture was found in a sclerosed mastoid with a softened and broken-down centre.

LABORATORY PHYSIOLOGY IN COLLEGE AND IN MEDICAL SCHOOL.

BY ARTHUR DERMONT BUSH, M. D., BURLINGTON, VT

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In 1885, Professor John C. Draper of the Medical Department of the University of the City of New York published his highly interesting book entitled "Medical Physics." By way of introduction he says: "It is no exaggeration to say that there is not a tissue, organ or function of the body, the proper comprehension of which does not involve a knowledge of the laws of physics. We may with equal justice affirm that there is scarcely a principle of physics which is not applied in some form in the human body." He then laments the general ignorance of physics by American physicians, especially as compared with Europeans, and offers his text as a wholesome corrective. He deals, somewhat *in extenso*, with fundamental principles, but makes many pioneer applications of these principles to the science of medicine.

Nearly thirty years have passed since this work of Dr. Draper first appeared. During this period the teaching of Physics as a separate subject has been taken up by many schools, carried for a while, and subsequently dropped; not, however, without distinctly affecting methods of teaching. We take note of physical principles in pathology, surgery and hygiene, but more particularly in physiology a greater part of whose manifestations are simply physical. Yet in these several branches of medicine, use is made chiefly of such of the data of physics as are directly applicable; the broad general principles are no longer taught in the medical school. We have come to see that medical science is specific, not general; deals not with the universality of law, but with the operating of universal law under particular, well-defined conditions. As a consequence of this change in our view-point a knowledge of the science of physics is now demanded not as a part of the medical course but as a necessary prerequisite. Knowledge of physical laws is, as Draper urged, essential to the proper comprehension of bodily functions, but that knowledge must be acquired where universals are taught,—in the academic side of the university; whereas a knowledge of the specific applications of those laws to the functioning human body must be learned in that department of the university devoted to the special study of the human body, to wit, in the medical school.

A similar comparison might be drawn from the methods of teaching chemistry. Not so many years ago, nearly all schools used valuable time teaching medical students fundamental principles in chemistry:—the laws of chemical combination and dissociation, nomenclature, periodicity, atomic theory, reactions and compounds of the metals and non-metals. Today, however, all of this general knowledge must be acquired before entering the medical school; and we are looking forward to the time when organic chemistry together with qualitative and quantitative analyses will also be a part of all premedical courses. Here again we recognize the principle that knowledge of general application should

be acquired in the academic side of the University; in its place in the medical school we are to teach the application of those general laws in the determining of the problems of human metabolism, in investigating physiologic and pathologic analyses and syntheses, and in estimating all those chemical reactions characteristic of bodily activity.

Since we have accepted this welcome readjustment in the departments of physics and chemistry (moved somewhat hurriedly albeit tardily thereto by the suasion of the Council on Medical Education), why should we not continue the good work in other departments, notably in the department of physiology? In our medical schools, in the department of physiology, we are giving courses parts of which properly belong to the work of the high school and college. We spend many long hours in the discussion and demonstration of fundamental biological laws (e. g. nerve-muscle reactions), studies as much out of place in the routine medical course as would be discussions of work and energy, motion and force. We seem to assume that there are no other agencies for the teaching of physiology as a pure science, and that, perforce, we must be elementary before we can be advanced. But there exist other excellent agencies for just such elementary training; hence we have no justifiable excuses for allowing our methods to lag ten to twenty years behind the pedagogical spirit of the times. As in chemistry and physics, we should require that all physiological data having a general application be taught in a premedical course, so that time may be reserved in the medical course in physiology for a dealing with data concerning human functioning specifically. "But" urges a highly-respected correspondent "there is no such thing as a human physiology; physiology is the same in frogs and cats as in man." Qualifiedly, yes; when considered as a pure science,—as a problem in biology; but not so when considered as an applied science. Aside from the many variations between physiologies of the higher and lower types, it is also true that in so highly complex a specialty as modern medicine there is a specific physiology—a physiology of the living, human body concerning whose functionings and varied manifestations the medical student needs a profoundly intimate acquaintance. Moreover, true to the growing spirit of teaching universals in the academic side of the university, and applied science in the professional and technical schools, we may ere long do in physiology as we have done in physics and chemistry, and insist on a premedical knowledge of biological principles so that we may utilize the needed time in the medical school for studying the action of those biological laws as manifested in the human organism. Our great obligation in the laboratory of medical physiology is to so train our students in the accurate observation of the multiple manifestations of the activities of the normal human mechanism that, when they enter the department of clinical medicine, they will be able to determine immediately the physiological significance of manifestations indicative of departures from the normal; students so trained would not only instantly recognize morbid conditions but they would, in the great majority of cases, be able to promptly deduce presumptive causal factors, provided, all the problems of the physiological laboratories were studied in the true spirit of investigation.

This unconventional point of view has been presented in general terms by others. Flexner (Bulletin No. 4 p. 59) says: "Physiology and pathology belong, then, in the university, because there is much more to them as sciences than the medical school has time for"; also (p. 60) "Physiology as an element of a liberal education, sweeps the whole horizon impartially, interested in genetic processes, searching for general laws. It works to best advantage with simple forms, . . .with jellyfish and cats in preference to man; an admirable introduction to medical physiology, but not really the same thing." Professor Matthews, of Chicago is quoted by Flexner as believing that both physiology and pathology (presumably, as general sciences) "should follow the example of physics, botany and chemistry and leave the medical faculty and be regarded as subjects prerequisite to the study of medicine" (*ibid* p. 60. Dr. Frederick T. Lewis of the Harvard Medical School takes a different view, a view burdened with some inconsistency. In an article entitled "The Preparation for the Study of Medicine" (Popular Science Monthly, July, 1909, 75, 65) he recommends that the matriculant in medicine should have taken premedical courses in college in zoology, botany, chemistry, physics, psychology, history, philosophy, political economy, English, French, and German. Under zoology he recommends the study of morphology by vertebrate dissection, embryology, histology and microscopic technique; but under the heading of "College Physiology" he says; "Some colleges offer courses in physiology which are dilute presentations of medical school work." "It is wholly undesirable for the medical student to take time from other college work for the sake of such courses." This is remarkable! Why, after recommending morphology, does Dr. Lewis balk at the equally important part of zoology embodied in those manifestations of life constituting physiology? Is not the muscle active as instructive as the muscle dead? Are not the conditions regulating activity as interesting as mere form and position? Or, again, is the study of vertebrate physiology any more of an intrusion on medical work than vertebrate dissection is a substitute for human anatomy? For the sake of sweet reasonableness, let us paraphrase Dr. Lewis' quotation thus: "Our medical schools are offering courses in physiology which, because of their elementary character, belong chiefly to the college," "It is

wholly undesirable for the medical student to take valuable time from his medical course for the sake of courses logically belonging to the academic side." This latter statement is really the text for Dr. Lewis' article (q. v.) for everything except physiology. Why except physiology, or rather that part of physiology which is fundamentally biological in its scope?

To ascertain to what extent the medical school may be duplicating work offered in secondary schools, several high school text-books were examined; and from one (Advanced Physiology and Hygiene, Conn and Budington) the following experiments are selected from the large number given: Experiments on beef heart and valve action; beating heart of frog or turtle; capillary circulation; lacteals in mesentery of cat; ciliary movements in frog; nerve-muscle preparations from gastrocnemius of frog; some characteristics of heart muscle (frog); spinal reflexes (frog); artificial eye; experiments with the "Harvard Apparatus." Are any of these omitted in the medical course?

Furthermore, to ascertain to what extent the subject of physiology is being offered in college, and the adequacy of the college course as a substitute for the biological part of the present course in physiology in the medical school, an inspection was made of the catalogs of about sixty colleges, supplemented by requests for detailed information in a certain proportion of cases. The information gleaned was often unsatisfactory owing to the frequent omission of definite statements as to the actual work done in both the lecture-room and in the laboratory; so it well may be that some colleges giving satisfactory courses are not herein listed. Six colleges, Baylor, Brown, Chicago, Dartmouth, Illinois and Yale give courses in *general* physiology equal or superior to the courses now given in most medical schools. A part of the work at Yale is as follows: "Physiology Chemistry, a course dealing with the chemical side of Physiology. A laboratory fee of fifteen dollars is charged." 12 hrs. 2d half. "Physiology of Nutrition. A course of lectures, recitations, and demonstrations, dealing primarily with the physiology of secretion, digestion, absorption, excretion, metabolism, and other general questions bearing on the subject of animal nutrition." 2 hrs. 2nd half. "Physical and Nervous Physiology. Lectures and recitations (three hours a week) with assigned reading in a textbook, and laboratory work in the mechanics of muscle and nerve, the nervous system, the circulation and respiration." 9 hours 1st half. At the University of Illinois, besides histology, hygiene and research, there is offered in the department of physiology the following: "Major Course.—Physiology of nerve and muscle; circulation; secretion; respiration; digestion; metabolism. Lectures and laboratory. (Full medical credit in physiology)" 2nd semester; 10 hours a week. Prerequisites: General Physics; Chemistry—Inorganic and Organic, Quantitative and Qualitative Analyses, Organic Synthesis; Zoology; Vertebrate, and Comparative Anatomy, Microscopical Technique and General Vertebrate Embryology. So complete are these courses that they are fully accredited in the Medical Departments; a fact which indicates, as the Yale catalog states (p. 143), that these courses in the medical school "are of an essentially biological character." It indicates, furthermore, that we are giving an academic, premedical course in physiology in the medical school instead of the technical course that should be given. What possible excuse can there be for a continuance of this condition? Why devote weeks to biological problems when the time is vitally needed for the training of men to an intimate acquaintance with the problems of human bodily activities? The entire assignment of hours in the department of physiology is none too ample for the acquiring of accurate information concerning the mechanism of the normal human body; and, since departures from the normal constitute the student's future field of investigation, it becomes doubly imperative that his knowledge of the normal be as profound as possible. Time may be spared for no work except the strictly professional, until satisfactory proficiency permits of the assignment of correlated problems. Let no one think that any of this study of the functioning human body may be taken up in physical diagnosis, or in topographical or regional anatomy. The latter is but a necessary preparation for accuracy of work in physiology; and completeness of information in human physiology is the *sine qua non* for success in diagnosis.

Besides the six colleges mentioned above, the following schools give courses which seem to be ample substitutes for the biological work in the medical school: Arkansas, Alabama, Bryn Mawr, Columbia, Cornell, Georgia, Indiana, Kansas, Missouri, Nebraska, Northwestern, Ohio State, Pennsylvania, Princeton, Purdue, Wisconsin and Texas. Again the question may be repeated: With twenty-two schools, at least, giving the biological work in physiology, what excuse can there be for any medical school duplicating the work? Twenty-four other schools offer courses either too elementary, or too specifically correlated with hygiene or with the teaching of physiology in secondary schools, to permit of their being added to the above list. Three schools, Boston University, Johns Hopkins and New York, offer courses in physiology to specials or graduates only. Four schools, Bowdoin, Drake, McGill and Tulane apparently offer no work in physiology. Two, at least, Dartmouth and Leland Stanford Jr. give their course in medical physiology in the academic department, a method quite at variance with the pedagogical principle this paper propounds; while seven, Cincinnati, Harvard, Iowa, Michigan, No. Dakota, Tufts and Utah offer academic physiology in the department of medicine, a method equally at variance with the idea herein

proposed. My premise is that medical education should be strictly technical, whereas the work on the academic side, as Dr. Souchon and others have contended, should be concerned with universals. If this premise be granted, then the medical school has neither the time nor the "atmosphere" for teaching general laws; nor has the academic side the equipment or spirit for teaching specific applications. That such cross teaching is being done today is due chiefly to two causes: (a) identity of subject-matter, and (b) non-recognition of the real difference in purpose of these two departments of the University. It can not be urged too often that the student has a right to the strict technical education that the needs of the community demand. Moreover, as Dr. Lewis urges (ibid p. 74), "In this great pursuit he will not become narrow. He will develop what Dr. James Jackson long ago described as a 'mind liberalized by scientific studies.' If he loses a certain breadth of culture because of specialization, still as Cardinal Newman has said, 'the advantage of the community is nearly in inverse ratio with his own.'"

It is submitted that the following subjects, now a routine part of most physiology courses in medical schools, be relegated to the academic department, where they more properly belong; there to be smelted to such values as may be useful in the development of a broad general course in general physiology: Muscle tissue experiments such as elasticity, extensibility, cohesion, consistency, irritability, contractility, time of contraction, curves, latent periods, phases of shortening and relaxation, isotonic and isometric contractions; variations in strength of stimuli, temperature, and drugs; treppe, contractures, fatigue, curve of work, summation. Electric phenomena, as demarcation current, negative variation, monophasic and diphasic action currents, rheoscopic frog, electrotonus, velocity of nerve impulse, direction of impulse, variations from external factors, refractory period, nature of nerve impulse, trophic phenomena, degeneration and regeneration. Reflex frog. General functions of the spinal cord. Characteristics of heart tissue of the poikilothermous animals. Hematology, capillary circulation, time of circulation, mechanical factors, volume curve. Automaticity of heart, and effect thereon of the salts of Na., K. and Ca. in varying percentages. "All or none" law, refractory period, compensatory pause, normal sequence, cardiac nerves and their action, vasomotor nerves. Principles and mechanics of respiration, chemical and physical changes in respired air and the relation thereto of the diffusion of gases, innervation of respiratory movements, variations from external factors. General physiology of digestion and alimentation, ditto excretion. Physiology of glands. Decerebrate frog, decerebellate pigeon, studies on the semicircular canals of frogs and pigeons and on the saccule and utricle of the *palaemon*. Embryology of the chick and pig; and studies on the growth of chick and pig as affected by variations in alimentation.

These are samples of the subjects now cumbering our routine work in laboratory physiology. No one questions their individual values as items of general physiology, or as topics for assignment in the research laboratories; and it may be admitted that a few may be utilized for purposes of demonstration; but the great mass has no place in a department presumably devoted to the training of men to an efficient knowledge of the functioning *human* body. Such subjects should be taken out of the medical curriculum, and in their stead should be placed studies upon such physiological phenomena as are manifest in, and demonstrable on, the body of a fellow student. To be sure, all known facts cannot thus be studied; some things must be learned by hearsay. The intricate, hidden details will have to be worked out by the specialist in research; his findings will be gratefully accepted by that great body of earnest men who have neither the opportunity nor the economic necessity for such prolonged investigations. However, there is an ample supply of desirable experimental problems; and, since time and privilege are so limited, shall we not rather put our great emphasis on just that data which must inevitably serve as the major premises in all the clinical syllogisms of the practitioner's future?

Why encumber ourselves with the ghosts of the past when once freed from the chains of a halting belief? When the manufacturer of today discovers his plant not running at maximum efficiency, he directs a searching investigation to the end that wornout machines be replaced, antiquated methods be abolished, and systems demonstrably useful be introduced. Shall not the teacher as dispassionately weigh? When he finds himself burdened with excess of demands, unable to accomplish needed results because of the press of conventional tasks, shall he not bravely assume the courage of his convictions and sharpen his scalpel forthwith? The great responsibility of the teaching in the laboratory of physiology is to train the men to observe carefully, record accurately, and deduce logically; and the best data for this supreme work is just that which is of greatest pertinence to the life-work of the physician.

The cases of infectious diseases reported to the Boston Board of Health for the week ending February 24, 1914, are as follows: Diphtheria, 68; scarlatina, 147, of which 14 are non-resident; typhoid fever, 5, of which 2 are non-resident; measles, 61; tuberculosis, 35, of which 2 are non-resident.

The death-rate of the reported deaths for the week was 16.72.

Clinical Department.

THE TREATMENT OF UTERINE CARCINOMA WITH CANCEROUS ASCITIC FLUID.

BY ROBERT M. GREEN, M.D., BOSTON,

AND

FRANK C. W. KONRAD, M.D., BOSTON.

[From the Gynecologic House Clinic of the Boston City Hospital.]

IN February, 1910, the late Dr. Hodenpyl, of New York, first reported[1] his work in the treatment of carcinoma with cancerous ascitic fluid. The somewhat startling success recorded in his early cases aroused great expectations of the possible value of this new therapeutic measure. Unhappily, Dr. Hodenpyl's untimely death prevented the completion of his own experimental researches.

The subject, however, interested many others, and several made similar laboratory and clinical investigations, with varying results. In May, 1911, Risley, of Boston, published[2] a report of his work, done at the Massachusetts General Hospital, under the direction of the Cancer Commission of Harvard University, which may be regarded as the conclusive continuation and completion of Hodenpyl's studies.

Risley described the theory and technic of his procedure, the animal experiments by which he determined the safety of administration of the cancerous fluids, and finally the clinical histories of a series of 45 cases of human carcinoma, which he treated over a considerable period of time with cancerous ascitic fluids from 5 cases. Some of the treatments were with autogenous, the majority with heterogenous fluids.

From a critical and dispassionate study of his results, Risley's conclusion was that "the use of cancerous ascitic fluid from patients in the active or even moderately resistant stages of the disease has no permanent effect in preventing or checking the growth of cancer, or of permanently benefiting the patient. Temporary beneficial effects may be noticed for periods of one to five months, but the course of the disease is in no way permanently retarded. Temporary relief from pain, especially in uterine cancer, and retardation of the growth for periods varying from one to five months may be expected in a small percentage of the cases."

In an appendix, Risley reported in brief a further series of 20 cases similarly treated; and from a further study of them and of his earlier cases concluded that "great symptomatic relief can be obtained in a good percentage of the patients treated, evidenced by relief from pain and improvement in nutrition and general physical condition. Retardation is noticeable and in many cases is prolonged from one to six months."

During the winter following the publication of Risley's article, the present writers had the opportunity of observing several cases of in-operable uterine carcinoma in the gynecologic wards of the Boston City Hospital. In view of the occasional relief from pain and the temporary retardation of growth which Risley had observed in cases of this type, it seemed worth while to make further trial of the method of treatment with cancerous ascitic fluid. An abundance of such fluid was obtained from one of the cases in our series, and with this were made autogenous inoculations in her case, and heterogenous in five other patients. The treatment was continued in some instances over a period of four months. The reporting of this series of cases has been delayed for two years, in order that final results might be recorded, so far as obtainable. For the privilege and opportunity of observing, treating, and reporting these cases, we wish herewith to express our grateful and appreciative acknowledgments to the visiting surgeon and to other members of the staff.

CASE 1. *Gynecological Records,* vol. 165, p. 281. M. G. Aet. 55. A widow. Two previous morcellations for inoperable carcinoma uteri. Patient has had six normal labors at term. Menopause eight years ago. Entered hospital June 5, 1911.

P. E. Well developed, pale and emaciated. Heart and lungs normal. Abdomen presents a sensitive mass, size of a grapefruit, rising above the symphysis, and apparently connected with the uterus. The posterior lip of the cervix is eroded and freely bleeding. Induration of anterior lip extends to and involves the base of bladder. The uterus is enlarged to size described above. Liver enlarged.

Diagnosis. Recurrent general abdominal carcinosis.

This patient remained in hospital 14 weeks. She gradually developed considerable ascites and on Aug. 10, 1911, was tapped and Ov ℥xi of clear greenish fluid withdrawn into sterile flasks. Examination of this fluid showed it to be sterile, with a low specific gravity. Cytologically its centrifuged sediment consisted largely of flat epithelioid cells.

On Aug. 14, 10 cc. of this fluid were injected into the patient's abdominal wall, without local or general reaction. On Aug. 17, 20 cc. were given, and on Aug. 22, 30 cc., both also without reaction.

The patient's condition now became rapidly worse. The ascites recurred, and on Sept. 4 she was tapped of Oxii of similar fluid, which was similarly preserved. The patient died on Sept. 8 without benefit from treatment.

CASE 2. *Gynecological Records,* vol. 167, p. 69. A. D. Aet. 42. Married 15 years. Born in England. Admitted to hospital July 12, 1911.

Obstetrical History. Full term; 6; last in Sept., 1907. Premature, 4. Miscarriage, Feb., 1911. Vaginal discharge, continuous since 1899; slime and blood; medium amount. Pulse, 132; temperature, 100.8°.

Aug. 16, 1911. 5 cc. ascitic fluid into abdominal wall.

Aug. 19, 1911.	10 cc.	Temperature oscillates between 98° and 100° but no change can be noticed as referable to the injections.
Aug. 22, 1911.	15 cc.	
Aug. 25, 1911.	15 cc.	
Aug. 29, 1911.	15 cc.	
Sept. 2, 1911.	20 cc.	
Sept. 6, 1911.	20 cc.	

Sept. 12, 1911. Vaginal examination: Vault of vagina is occupied by an indurated crater; uterus is enlarged to two fingers above the symphysis. As yet there is little extension into broad ligaments. Recto-vaginal septum is infiltrated with the growth, especially on both sides.

Discharged on request.

Patient seemed much improved in general condition and was relieved of pain.

CASE 3. *Gynecological Records,* vol. 167, p. 269. N. W., aet. 55. Married; born in Ireland. Admitted to hospital July 24, 1911.

Previous History. Gyn. Records, vol. 166, p. 193. Diag. carcinoma uteri. Discharged on request. In hospital one week. Not relieved.

Readmitted July 24, 1911.

Obstetrical History. Full term, 0; premature, 4; last 20 years ago at 4 months; vaginal discharge, bloody; medium amount; red clots; continuous for five weeks; pulse, 92; temperature, 100°.

Aug. 19, 1911. Patient is having injections of cancerous ascitic fluid: complains of slightly less pain; temperature slightly elevated.

Aug. 16, 1911. 5 cc. of fluid injected into abdominal wall.

Aug. 19, 1911. 10 cc.

Aug. 22. 1911. 15 cc.

Aug. 23, 1911. Patient passed pieces of tissue by vagina, size of baseball; says she feels much relieved; injections continued.

Aug. 25, 1911.	15 cc.	No temperature changes were noted referable to the injections.
Aug. 30, 1911.	15 cc	
Sept. 2, 1911.	20 cc.	
Sept. 6, 1911.	20 cc.	

Sept. 13, 1911. Patient died at 12 m.

CASE 4. *Gynecological Records,* vol. 168, p. 221. C.D., aet. 50; single; born in Ireland. Admitted to hospital Aug. 18, 1911.

History. Patient has flowed almost continuously for nine months, and until two weeks ago. Pain across lower abdomen and in back for two weeks; none before. Has incontinence of urine and pain with micturition for three weeks. Vaginal discharge has never been foul. Has lost considerable weight and has had a cough for four to five months but raises nothing with it. Has often had night sweats.

Defecation, irregular; appetite, poor; bowels, constipated; digestion, poor; pulse, 90; temperature, 100.4°. Urine: alk, 1016; alb. s. t., few squamous and pus cells.

Physical Examination. Well developed but shows loss of weight; very anemic and looks 65 years old. Pulse is regular, of good quality slightly increased tension and not rapid.

Lungs: Negative except for sticky râles at both bases.

Heart: Normal size; systolic murmur over whole precordium and transmitted to axilla. A_2 P_2.

Abdomen: Soft and negative except for indefinite mass on left over sigmoid, apparently connected with the intestine; tenderness over whole lower abdomen on deep pressure.

Vaginal Examination. Stretched, intact introitus; good perineum; mucous membrane is pale; cervix is replaced by an indurated crater mass which fills the vaginal vaults with infiltrations extending on either side of broad ligament; uterus is not made out on account of abdominal rigidity; considerable brown, foul vaginal discharge; recto-vaginal wall also infiltrated; chain of glands in both groins.

Patient was given injections of cancerous ascitic fluid every third day in doses from 10 to 30 cc. from Aug. 20 to Nov. 17. Patient failed steadily and died on Nov. 22.

CASE 5. *Gynecological Records,* vol. 169, p. 177. M. A., aet. 39; married. Nativity, Italy.

Sept. 12, 1911. Bleeding from vagina for a long time. Backache. Further history unobtainable.

Physical Examination. W. D. and emaciated. Patchy consolidations in the lungs. Abdominal: mass extending from pelvis three fingers, above symphysis. Vaginal: large ulceration involving entire circumference of upper vagina; cervix almost gone; marked induration throughout pelvis. General condition poor; cachectic. Inoperable carcinoma.

Course. In the hospital 25 days. Temperature irregularly elevated but tending toward the normal.

Sept. 16, 1911. 5 cc. ascitic fluid into abdominal wall. Temp. 99.8°—98.6°.

Oct 3, 1911. 10 cc. ascitic fluid into abdominal wall. Temp. 98.6°. No reaction.

Oct. 8, 1911. Died suddenly, apparently of embolus.

CASE 6. *Gynecological Records,* vol. 169, p, 181. M. B., aet. 55. A widow. Nativity, Boston.

Sept. 13, 1911. Pains; flowing; loss of weight for past 15 years (65 pounds). Menopause six years ago. No flowing till one month previous to entrance.

Physical Examination. W. D. and N. Heart; lungs; abdomen, negative. Vaginal: Cervix is cancerous; uterus is somewhat movable.

Sept. 14, 1911. Vagina not much infiltrated. G. C. poor. Rectal: Stricture of rectum, admitting tip of finger; infiltration of rectal wall. Broad ligaments quite free.

Course. In the hospital 33 days. Temperature irregularly elevated, maximum 102° Sept. 14.

Sept. 16, 1911. 5 cc. ascitic fluid into abdominal wall. Temperature 99°-100°.

Sept. 21, 1911. 7 cc. ascitic fluid into abdominal wall. Temperature 99°.

Sept. 25, 1911. 10 cc. ascitic fluid into abdominal wall. Temperature 99°-99.8°.

Oct. 1, 1911. 18 cc. ascitic fluid into abdominal wall. Temperature 98°-98.8°.

Oct. 5, 1911. 20 cc. ascitic fluid into abdominal wall. Temperature 98°.

Oct. 9, 1911. 25 cc. ascitic fluid into abdominal wall. Temperature 98° -99.2°

Oct. 14, 1911. 30 cc. ascitic fluid into abdominal wall. Temperature 98.4°-99°.

Oct. 16, 1911. Discharged with local condition unchanged, general condition much improved.

CONCLUSIONS.

1. These cases all showed a slight and irregular elevation of temperature, which, however, bore no apparent relation in its oscillations to

the injections of cancerous ascitic fluid, but seemed rather to be due to septic absorption from the ulcerating surface of the cancer.

2. The results obtained correspond with those obtained at the Massachusetts General Hospital. Cases 1, 4, and 5 gave no apparent reaction; Cases 2 and 6, according to their own statement, were relieved of pain and improved in general physical condition; the third case showed an apparent temporary relief of pain, and the tumor was apparently caused to slough, as evidenced by the tissue passed per vagina.

3. Four of the cases died of the disease and apparently without retardation. Two other cases were discharged and lost to observation.

4. That the injections of serum do have a beneficial effect can hardly be doubted, but whether this effect is due simply to a serum isotonic with the blood and acting as a stimulant or whether the reaction is specific, remains still to be proven. Patients with extensive cancer are usually cachectic and ill nourished, and therefore it is easy to conceive that the injection of a highly nutritive fluid, saline and isotonic with the blood, would have a stimulating effect and aid in the improvement of the general condition, and thus probably also the resistance to the inroads of the cancer. The reaction, however, is slight, very temporary and shows slight or no specificity.

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BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

REGULAR MEETING AT THE BOSTON MEDICAL LIBRARY, NOV. 20, 1913, D. H. FULLER, M.D., SECRETARY.

DR. GEORGE A. WATERMAN read a paper on

THE RELATIONSHIP BETWEEN EPILEPSY AND MIGRAINE.*

DISCUSSION.

DR. G. S. DERBY: I was very much interested in one of the cases which Dr. Waterman reported, a man whose eyes I had an opportunity to examine. What struck me as most unusual was a permanent scotoma of the hemianopic type, which was present in the upper nasal quadrant of the left and in the upper temporal quadrant of the right eye. The outlines of the fields for white were normal. The colors were somewhat contracted, and showed a marked degree of interlacing. The fundus examination showed nerve-heads which were somewhat blurred and congested. Previously, I had not seen cases of this type, with a permanent scotoma, in connection with migraine or epilepsy, and it seemed to me that it must represent an organic change, probably brain tumor.

DR. P. C. KNAPP said that although Dr. Waterman had collected more evidence in favor of the relation between migraine and epilepsy than he had supposed could be found, he was nevertheless not convinced that the apparent association of the two affections was anything more than a coincidence. The treatises on nervous diseases thirty or forty years ago had much to say of the relation between the two affections; some of the more recent works, notably the new work edited by White and Jelliffe, do not even refer to it. As has already been said the convulsive seizure and the attack of migraine may at times be merely syndromes, due to some morbid process in the brain, and not independent diseases. Hence it is possible that a single underlying disease may produce at one time migraine, at another a convulsion, just as the cortical degeneration of general paralysis may produce an apoplectiform seizure or a convulsion. Although migraine is chiefly a sensory disorder, it may at times be preceded by a motor aura-aphasia or hemiplegia. A permanent hemianopsia or segment defect, due possibly to a hemorrhage, is occasionally seen. Dr. Thomas a few years ago reported several cases and he had seen several himself. Of all common affections of the nervous system, migraine is the one which most frequently shows a familial occurrence and is usually markedly hereditary; in epilepsy, on the contrary, similar heredity is rather rare and a pronounced familial occurrence is almost unknown. He had found migraine, in some large families, fifteen or twenty or more, affecting over fifty per cent. of those investigated, yet in no case was there any trace of epilepsy. Epileptics, of course, often have headaches, especially after a fit, and the headache may occur after an attack of petit mal or an attack in sleep, of which no note has been made. Headache, however, is of extremely common occurrence,—only 10 in 3000 cases investigated by Jelliffe being exempt, but not every headache can be regarded as migraine. Again, epilepsy is usually a progressive disease, often leading to dementia, whereas many cases of migraine recover after the age of fifty, and the disease never leads to mental deterioration. Although he had had the relation between the two affections constantly before his mind, as a result of early reading and the frequent discussions on the subject, he had failed to find in actual practice in the last thirty years any such association, and, above all, he believed that there was no justification for suggesting any such association to the epileptic and still less to the migraine patient.

DR. G. L. WALTON: We have listened to a masterly argument in favor of a case which has always seemed to me inherently weak. The material collected to substantiate this claim has a rather formidable aspect until we remember that the list comprises a comparatively insignificant number of isolated and unusual cases selected from an enormous mass of material consisting otherwise of typical migraine and epilepsy offering no suggestion of resemblance or analogy beyond the superficial one to which I shall shortly refer. Indeed, we are not sure that they are all cases of migraine and epilepsy, whether typical or atypical, and that cases have not been included in which unilateral headache and

*See page 337.

convulsion have arisen from other cause or causes than migraine and epilepsy. I remember very well a case of pituitary tumor in which unilateral sick headaches, with temporary hemianopsia, preceded, for many years, the permanent loss of visual field and the other diagnostic signs of the lesion from which the patient died, and which was confirmed by autopsy. I do not know today whether these early headaches were symptomatic of the tumor, or were migranous and merely a coincidence. Whatever the fact, neither this history nor a hundred such histories would lead the most speculative clinicist to argue a relation between migraine and brain tumor. Nor can I see that the line of reasoning by which it is attempted to draw an analogy between migraine and epilepsy is much sounder.

Again, in estimating the value of the statistics collected to fortify this claim we must not neglect to exercise the control without which such statistics are of no value. Thus, migraine is a very common, and epilepsy a fairly common disease. In looking up the subject of migraine, I found in one hundred healthy persons, seventeen typical cases of migraine, and more of migranous headache. It is not surprising, therefore, that a certain investigator has found forty cases of migraine among the children of some two hundred epileptics. We should expect not far short of forty cases of migraine among the children of two hundred healthy persons taken at random. If the children averaged more than one to an individual (a fact upon which we are not enlightened) we should not be surprised at an even greater proportion of migraine. If these statistics show anything, then, instead of fortifying the contention of the reader, they show that there is no more migraine among the children of epileptics than among the children of other individuals.

A word upon the so-called resemblance between these diseases. This resemblance seems to me a very superficial one, bearing little relation to the fundamental characteristics of the two conditions. The pathognomic features of epilepsy are (1) unconsciousness, (2) the brief duration of the convulsions which are supposed to be the motor analogue of the pain in migraine, (3) the fact that whatever movements are made or whatever psychic equivalents may appear are unconscious and automatic. In migraine, on the other hand, (1) there is no suggestion of unconsciousness, (2) the duration of the pain is one of hours instead of minutes, (3) there are no automatic and unconscious movements, and the psychic equivalent is a conscious one. The main resemblance seems to lie in the fact that both are recurrent with more or less periodicity, and that, in each, an aura is apt to precede the attack. But even when the visual aura, which commonly precedes migraine, precedes epilepsy, it generally is not characterized by scotomata, but is oftener irritative (hallucinatory) in its nature.

The practical question is whether we have enough evidence of the analogy and interchangeability of these diseases to warrant frightening the victim of migraine with the prospect of becoming an epileptic. I can only say that I am decidedly of the opinion that we have not.

DR. E. S. HODSKINS: I have seen only one case in which attacks of migraine were followed by typical seizures. This patient had severe attacks of migraine for several years until finally the migranous attacks would alternate with epileptic convulsions, which finally replaced the migranous attacks altogether. I have also seen one case in which epilepsy and migraine were combined and seemingly the two diseases had no relation to each other. Dr. Knapp has spoken of the small number of epileptics in which he has obtained a history of similar heredity, this has been my experience.

In closing the discussion DR. WATERMAN said: Some years ago Dr. Putnam published an article descriptive of the relationship existing between migrain and supraorbital neuralgia. On account of his well-known interest and wide experience in the diseases under discussion this evening I should like to read his opinion on the question in hand which he sent me together with a note saying he regretted his inability to be present.

"I have seen, as no doubt others have, a number of cases illustrating very strikingly the affirmative side of your proposition with regard to the connection between epilepsy and migraine. I suppose, on the other hand, that when it comes to the pathology of these disorders, no very definite work has been done in the way of establishing a close relationship. For my part I am a believer in the "neuropathic family idea of Féré and others, and I think that the two affections of which you speak do stand closer to each other than most of the others on the neuropathic list, although the difference in respect to relatedness is one mainly of degree.

"Dr. Clark and other men have written interestingly on the subject of myoclonic disorders, some forms of which also bear a close relationship to epilepsy, as no doubt you know.

"One more point has always seemed to me important—namely that I presume we all of us have, in a latent form, lying beneath the surface, as it were, the possibilities and potencies of many forms of inferiority (developmental, autotoxic, etc.) corresponding to all these types. In other words, our organisms are like crystals which one might assume to be capable of fracturing in various different planes but far more easily in certain planes than in others, and although with most of us these fractures may never actually occur, yet any one of them might occur under sufficient stress. There are, in short, I think, many points of less resistance, even in healthy persons, corresponding to the actual defects seen in persons in whom these 'fractures' actually take place. Speaking clinically and practically, I suppose few persons would maintain that migraine, which is so common, ought to be considered as a bar to marriage, while epilepsy should be so considered. What do you think on this point?"

In reply to Dr. Walton's objection to the points of similarity between the two diseases described in the introduction of the paper; I am willing to concede that in the sense of an explosion, meaning a sudden outburst, that an attack of migraine could not perhaps, be considered an explosive phenomenon. He must admit, however, that just as epilepsy is a liberation of motor energy, migraine on its part, represents a liberation of sensory energy. The fact that the aura, when visual, may have different qualities in the two diseases is of course generally known. Just as it is recognized that the character of the paraesthesia of the arm and face differ in the two diseases in the rapidity of onset and the areas involved. These are points of difference between the two diseases, although even here their borderlands may meet as in the occasional instances when the same type of aura may introduce at one time an at-

tack of migraine, and at another time an attack of epilepsy in the same individual.

In general we must recognize that the frequent occurrence of an aura in both diseases indicative of a disturbance in a definite cortical area, does suggest a similarity between the two diseases, as does also the fact that in both neuroses, this aura may occur at times independently of an attack.

That psychic equivalents are not seen in migraine as well as in epilepsy, is of course, not true. Many writers have described psychic symptoms in attacks of migraine, similar to those in patients suffering from epilepsy. Kovalevski has reported cases of migraine in the course of which typical "dämmerzustände" analogous to the epileptic form, made its appearance, and I would call attention to the observations of Zacher, Brackman, Mingzini, Féré and Krafft-Ebing who have described migraine attacks associated with psychoses, as hallucinations, stuporous conditions, impulsive movements and amnesia. Though these instances do not exhibit an absolute loss of consciousness, they do indicate similarity in the alteration of consciousness described.

The fact that Dr. Hodskins has seen three thousand cases of epilepsy and never noted any relationship to migraine in but one of them is interesting, but does not, of course, mean that such relationship may not have existed in some of them, if the cases had been studied, with such an investigation in view. I presume we have had two or three thousand cases of epilepsy at the Massachusetts Hospital in the past ten or fifteen years, yet I doubt if the records would anywhere mention that a relationship to migraine has been observed, and yet only three days ago, having this question in mind, I called back a girl, who was being treated for epilepsy, as she went out, and learned on inquiry that she had suffered from migraine until eighteen, when the attacks stopped and gave place to petit mal, which in turn, developed a few years later into major attacks. How many more such cases might have been found if careful inquiry had been made of other patients is, of course, conjecture. But these points of relationship must be brought out by questioning, they are not presented to one.

Dr. Knapp's contention that the question of relationship between epilepsy and migraine is an old and discarded one, is, I think, unfounded, for although early writers did recognize and discuss it, much attention is paid to it in many articles during the past ten years, several of which have been referred to in the foregoing paper.

While Binswanger, in his recent book on epilepsy gives two pages to it, Flateau in his excellent monograph on migraine, devotes at least ten or twelve pages to the discussion of the subject. The case Dr. Knapp refers to in which a patient with persistent hemianopsia died of a cerebral hemorrhage, does not, I think, have any bearing on the patient referred to in the present paper, in whom the attacks of sick headaches were replaced by headaches and epileptic seizures preceded by scotoma in a young person. Of course, instances of patients suffering from night attacks of epilepsy, waking with morning headache, have been observed by most of us who are familiar with the disease. I do not think, however, that this error would apply to any, but one of the cases reported in the foregoing paper; in Krafft Ebing's case it was recognized that hemicrania did follow, in the morning, the epileptic seizure of the preceding night.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

THIRTIETH ANNUAL MEETING HELD AT WASHINGTON, D.C., MAY 6, 7, 8, 1913.

(*Continued from page 322*)

DISCUSSION OF DR. PRATT'S AND DR. DALAND'S PAPERS.

DR. MINOR said: As regards the question of tension, Dr. Pratt's remarks on the therapeutic use of water interested me because we all have a number of cases of high tension in which, after a while, you exhaust all your therapeutic resources and you come up against a dead wall. You have tried the nitrites and the iodids, which I still firmly believe in, and dietetic regulation, and hygienic regulation, but when they fail us I believe that warm water will prove our most valuable resource.

Like Dr. Daland, I have not found very much use in nitroglycerine, and I am always looking for something which will meet the needs of these cases of hypertension. They are increasing in our country every day. Owing to the foolishness of our American system of living, they are taking larger toll of people, and we are getting more and more cases in which it is very essential for us to find some means of holding down that pressure. There are some agencies that are reported to have a wonderful effect, and they talk to us a great deal about high frequency currents, and it is unquestionably remarkable how such currents can temporarily greatly reduce blood-pressure, but I have never found anything permanent in their effects. The patient cannot constantly be running to take electricity, but everybody has at his disposition a tub of hot water. As to whether the addition of carbonic acid in the low tension cases is so valuable, I do not know, but in high tension cases I am a firm believer in hot water.

DR. PRATT: Dr. Minor suggested that I should use a greater variation in the temperature of the baths. My object was not the reduction or elevation of the blood-pressure, but the study of the action of the carbon dioxid baths on the blood-pressure at the temperature at which the baths are used in the treatment of heart disease. I have used the iodides in a large number of cases of hypertonia during the past ten years, and I have never been able to convince myself that they produce a fall in the blood-pressure. I do not believe you can reduce the blood pressure in chronic nephritis permanently by any measure, and if it could be done, I am not at all sure that it might not be harmful. Bier pointed out many years ago that the rise in blood-pressure in nephritis possibly was an aid to the functional power of the kidney. This method of treatment should be given a fair trial. I believe it is very important to make observations on the pulse and the effect of each bath on the blood-pressure. In every treatment that has been given I have always insisted that trained attendants should record the blood-pressure before and after the bath and, of course, the temperature and strength of the bath should be carefully recorded. It is said that you can lower the blood-pressure in chronic nephritis by dietetic regulation. In one of my cases of chronic interstitial nephritis, with a strong heart and hypertonia, the effect of a low protein diet was

carefully studied; the food was reduced in protein to less than 40 gms. a day, but at the end of the month there was no definite fall in his blood-pressure. Dr. Folin examined the blood in two of my cases of hypertonia without nephritis, and found that there was no abnormal increase of non-protein nitrogen in the blood. I find that I did not make clear the test that I proposed. Give the patient a bath of full strength at 90 degrees for ten minutes; a fall in the blood-pressure is the sign of a weak heart. Normally, a distinct rise in the blood-pressure results from this bath. If cool carbon dioxide baths 89° to 92° F. produce a fall of blood-pressure they will do harm rather than good.

DR. BABCOCK: When you say the temperature is 90°, will you tell me the strength of your bath as to carbon dioxide?

DR. PRATT: The total strength of the bath is prepared by adding 1000 c.c. hydrochloric acid, and 1000 gms. of sodium bicarbonate to a tub of ordinary size filled with water. Hydrochloric acid injures solid porcelain tubs, as well as those made of iron. The substitution of formic acid for hydrochloric acid, as recommended by Dr. Hinsdale, is a practical and useful improvement in technic.

DR. DALAND: I am not in accord with the view that hypertension is always compensatory. I believe it is always symptomatic, and occasionally compensatory. I agree very heartily with Dr. Elsner when he speaks about the wide distress in the minds of the patients on the announcement of the physician that he is suffering from hypertension, and also agree with him that the influences of sorrow and distress are a cause of this same condition. And I think this announcement of the condition will make him worse. Dr. Babcock dwells very properly upon the enormous influence of rest in these cases as a wonderful factor in many of these cases of high blood-pressure. As to the beneficial influence received by a patient from nitroglycerine in doses of 1-250 grains dry on the tongue, these beneficial results are perhaps to be accounted for on the ground of their psychic effect. Many of these individuals are generally thrown into a high state of nervous tension by the oncoming of an attack, and are directly greatly benefited by regarding this aspect of the case.

DR. FRANK TAYLOR FULTON, of Providence, R. I., read a paper on

AURICULAR FLUTTER

and reported a case. Auricular flutter is a term applied to a condition which is characterized by an extremely rapid action of the auricle, the rate being usually somewhere between 200 and 330 per minute. It is the result of some pathological impulse formation. The ventricular action may be varied. As a rule, there is always some grade of heart-block. Most commonly the ventricle rate is one-half that of the auricle; it may, however, be one-fourth that of the auricle, or the transmission of the impulse to the ventricle may be very irregular, so that the pulse may closely resemble the pulse of auricular fibrillation. Flutter is closely related to fibrillation, as well as to regular tachycardias of less rapid rate than itself. The condition has been considered to be rare, but the electro-cardiograph has demonstrated that it is probably not very uncommon. It may be detected by the use of the polygraph, although the tracings made by this means are sometimes extremely difficult to interpret. It is not necessarily a permanent condition; the heart action may return to normal and remain so for a long time. It sometimes occurs in paroxysms; the case in point is paroxysmal in type and has been under observation for seven years, during which he has had many attacks, the paroxysms at times lasting for ten or twelve hours or more, but more lately have been less severe and last only for an hour or two. The tracings show the radial and venous pulse during the paroxysm and at the time of transition to the normal rhythm.

Evidence seems to show that the origin of impulse is not from the normal point of origin; some other point than the normal pacemaker has taken on the function of stimulus production. The reasons for this were stated. The first case reported was in a man of 48 suffering with progressive, chronic nephritis with paroxysmal dyspnea and edema. Onset sudden while in the hospital. The flutter lasted for a month, and suddenly became normal. Digitalis in moderate doses of the tincture was given, but without effect. The rate was 143 per minute and there was Cheyne-Stokes' breathing. The patient is still in the hospital. The second case occurred in a man of 54 with gradually increasing edema and dyspnea for a year, due to chronic nephritis and an enlarged heart in decompensation. The pulse-rate was 136 to 138. The auricular waves in the venous tracing were at the rate of 272 per minute. The rate slowed after using digitalis, due to an increased grade of heart-block.

The third case was in a man of 70. There was palpitation following a nervous breakdown. Tracings of these cases were shown by lantern slides.

DR. FULTON: I emphasize particularly the analysis of the radial curves because I am convinced that many cases with this mechanism can be diagnosticated without any mistake by the radial curves alone. There are other conditions which might bring about somewhat similar appearances, but I think there is no question but that the radial tracing alone is of a great deal of value in making the diagnosis; the reason that it is of value is that cases have been simultaneously studied with the electrocardiograph and the polygraph, so that the tracings which are so clear with the electrocardiograph can also be identified by the use of the other instrument. The possibility of extra-systole must, of course, be kept in mind.

DR. F. FREMONT-SMITH, of Washington, read a paper on the

NUTRITIONAL EFFECTS OF INTERMITTENT ALBUMINURIA OF ADOLESCENCE.

Two brothers, aged five and nine, in 1901 developed an acute infection which was eruptive and was termed German measles by two competent physicians, but may have been scarlet fever. During their brief illness both showed albuminuria. It is not known whether they had albumen previously. For eight years both patients continued to present albumen from time to time, and at various hours during the day, with the utmost irregularity as to the hour. The cases were not orthostatic, postural or lordatic. The patients spent the winters each year in a balmy sub-tropical climate and the summers on the Maine coast. The striking fact was that the amount of albumen, the extraordinary irregularity of its occurrence,—one specimen loaded to an alarming extent, the very next absolutely free from serum albumen, regardless of the hour of the day, or of posture, continued un-

interrupted in the moist heat of southern winters or in the chill of the north. No nutritional faults were observed. The conclusion from studies of the literature corroborated the opinion that transitory albuminuria, intermittent or remittent, has little or no effect on the nutrition of the child, but that all such cases should be closely watched.

DR. GUY HINSDALE, of Hot Springs, Virginia, read a paper on

AMERICAN MINERAL WATERS: LATER ASPECTS OF THEIR ANALYSIS, CLASSIFICATION AND THERAPEUTIC PROPERTIES.

Dr. Hinsdale explained and illustrated the new form of stating water analyses, in which values are assigned to the various basic radicles and acid radicles and not to the familiar salts even in hypothetical combination. The latter method has been abandoned by U. S. Government chemists and all determinations are made in parts per million. The different groups of mineral waters and their therapeutic qualities were commented on. The subject of radioactive waters and their occurrence in the United States and in Europe was considered and also the means of artificially rendering a given water radioactive.. This involved the subject of radium and its emanation. The waters of the Yellowstone National Park and of the Hot Springs of Arkansas have been carefully studied and reported as radioactive by Government chemists. The electroscopic method was described and the various units of radioactivity were noted. The preference was given to the "Curie" or "Millicurie" used in France and in the United States. The author visited the water laboratory of the U. S. Department of Agriculture and reported that the chemists of the department were engaged in a study of all the available springs in the country.

DISCUSSION.

DR. A. JACOBI: I would like to know what the radioactive condition of all those wonderful mineral spas means for us. I am only a general practitioner and I want to know what they are good for. What do they claim the physical or theoretic effect is?

DR. W. E. CASSELBERRY, Chicago: I inquire if the author has formed an opinion as to the real efficacy of the radioactive qualities of the springs we mentioned. We have long ascribed the effects to the heat and elimination from the skin in the hot bath. It is well known that the hot springs of Arkansas have effects on certain diseases and that the chemical composition in these waters is almost identical with the composition of the waters of Lake Michigan, but it has been for years a mystery for which no explanation has been given as to what the superior efficacy might be due, aside from the heat and the elimination which seems an inadequate explanation, because the same effects could not be produced by artificially heating the water from Lake Michigan.

DR. KAHLO: This subject has been very extensively investigated in various parts of Europe. I have just returned from there, and took occasion while abroad to investigate this particular subject, and a great deal of importance is attached to this question there, not only at mineral water resorts, where the waters are more or less radioactive, but in the treatment of certain diseases by radium. A good deal of work has been done by Professor His in Berlin, and by Von Noorden and Falta in Vienna. They have used this treatment in a great many diseases, with varying results. I think that there can be no question as to the value of the radium treatment in certain forms of rheumatism and gout. How far these results differ when radium is used, and when the naturally radioactive waters are used, I do not know. They attach great importance to this treatment not only by inhalation, but hypodermically and by the mouth, and it is used very largely in the bath. There it is usually prescribed in the proportion in which radium emanation exists in the Gastein water. This is a subject which will receive more and more attention from the members of our profession in this country, because, while it is comparatively new, efforts are now being made to determine the exact degree of radioactivity of our own waters. The test by the fontactoscope is a very simple one. The technic is not difficult to acquire, and but little allowance need be made for the personal equation in such an investigation.

DR. FREMONT-SMITH, Washington: I beg to ask for information from Dr. Hinsdale whether there are any popular spas in Europe which are not radioactive. Also I should like to ask what is the grade of radio-activity of the springs of Hot Springs, Va.

DR. HINSDALE: Dr. Jacobi inquires about what value radioactivity would have for us in the treatment of disease. I have had no experience with treatment of patients by distinctly radioactive measures although the Germans have published a great deal about it, and the work of Klemperer is probably the most complete exposition of it. They all seem to claim great benefit in the treatment of rheumatism and gout and chronic affections of that type. We, I think, in this country have not received data enough to know what waters are radioactive. The government has not yet announced what waters of Virginia are radioactive. They have been tested by the government experts, and I suppose we will hear more about that later, but I am in no position yet to make any publication about it. There is a very long list of European spas that are found to be radioactive, graded according to measured scales. We will probably find that most all the springs of Europe are such. As far as the proportional assignment of benefit to the radioactivity and to other features of the spa treatment, I may say that at Aix they do not claim that radioactivity is the principal means by which benefit is derived. They attribute a great deal of benefit to the moisture and to the heat and to the manipulations which are given at Aix. Of course, they do assert that the radioactivity helps to some extent in the treatment of these cases. They are not dogmatic in their claims. I wish that I could give you more definite information about the radio-active springs of this country, but we are not in a position to make any definite statement about it, perhaps next year we may do so.

DR. ROBERT H. BABCOCK, of Chicago, read a paper on the

CAUSE OF BRONCHIAL ASTHMA.

He said that in every case of asthma one should search for some focus of chronic infection in the nasal accessory sinuses, in a chronic hyperplastic ethmoiditis, or in some closed cavity in any other part of the body. If found, advise its removal by surgical interference. If the absorption of a foreign protein can be presented in this manner, it is likely that the asthmatic seizures will be prevented or greatly ameliorated. In cases of asthma traceable to

animal or vegetable emanations or to some article of food to which the person has become sensitized, we can do nothing more than avoid exposure to the exciting cause. Dr. Babcock with other investigators concludes that bronchial asthma is a manifestation of anaphylaxis, or a protein sensitization or hypersensitiveness on the part of the animal to protein introduced into the system either by way of the alimentary canal or parenterally, *i.e.* some other channel which permits absorption.

DR. W. E. CASSELBERRY, Chicago, read a paper on

THE RECOGNITION OF EARLY CHANGES IN THE LARYNX IN TUBERCULOSIS.

The first definite change provoked by the bacillus in the larynx is an infiltration of the mucosa and submucosa, the tubercles being deposited near enough to the surface to change its aspect. The infiltrations fall into three groups:

1. Mammillated hyperplasia, by reason of the globular form of tubercles.
2. Granulomatous and verrucous formations, which may make an early appearance, although usually they appear only after ulceration.
3. Incipient edematous hyperplasia, rarely gross edema.

Favorite sites stamp upon the lesions additional distinctive marks, one of the most characteristic of which, a furrow in the vocal angle, has received little notice. Mammillated hyperplasia, commencing at the base of the vocal process and marked by a furrow in the vocal angle, is the most distinctive and one of the earliest signs. Interarytenoid hyperplasia, alone, is indistinguishable from non-tuberculous forms. But both together solve the problem of differentiating tuberculous laryngitis, from simple laryngitis in a tuberculous subject. This question concerns mostly the hopefully resistant type in which, if recognized early, the results of treatment justify every effort and any sacrifice. Somewhat later a bilateral development of the furrow in the vocal angle leads to an appearance or squaring of the semicircle of the posterior commissure, which is strikingly characteristic. Thus a diagnosis from the laryngeal image alone is usually, albeit not invariably, possible, every additional test being exceptionally required to remove all doubt.

DISCUSSION.

DR. C. L. MINOR: I am satisfied that too many neglect to examine the larynx of patients. Every man who has examined the lungs has not done so satisfactorily until he has also examined the nose and larynx.

DR. C. C. BROWNING: We have not completed the examination of the respiratory tract of a tuberculous patient until the nose and throat have been thoroughly examined. The larynx should be carefully watched, especially during the beginning of the use of tuberculin. Frequently changes will be brought about in the larynx before they would be noticeable in the lung, or by the temperature or other signs which we are likely to look for in the detection of tuberculosis, and if the dose is repeated too frequently or is too large we may bring about disastrous results in the larynx, when by the careful watching and graduating the doses by the condition of the larynx we may bring about an excellent result. I am satisfied that the universal recommendation, without further consideration, that you should put all patients out of doors and unprotected may have its exceptions. Not that the general principle does not hold good, but we must individualize in our cases.

DR. KINGHORN: I would like to ask Dr. Casselberry as to treatment. I have often been doubtful whether to put the patient's voice at absolute rest, suspecting a tuberculous condition, or whether simply a modified rest of the voice. I would like to ask whether he would put the patient at absolute rest.

DR. CASSELBERRY: You may have noticed that the effort in the paper has been to systematize the early lesions of tuberculosis of the larynx and to formulate a rule of thought as an aid to their recognition. The lesions are so diverse that I felt, unless one could reduce their presentation as well as recognition to order, that nothing would be gained. Examination of the larynx is rendered comparatively easy by a one per cent. cocaine solution sprayed sparingly into the fauces, not mopped on with cotton, and it is harmless if one tells them to spit out, and not to swallow immediately afterward. Furthermore, for those who are wearing glasses the substitution of an ordinary small, well-focussed brilliant head light, which eliminates one angle of reflection from the course of the light, has the advantage of disclosing small lesions in the larynx with less blurring of outline.

In regard to rest for the voice in the treatment. Yes, provided it be tuberculosis of the larynx and not merely laryngitis in a tuberculous subject, he should have perfect rest if he will take it. Absolute rest to the voice is one of the first principles of the treatment, but one must know that it is tuberculosis of the larynx before feeling justified in subjecting a patient to such a trial and inconvenience.

(To be continued.)

Book Reviews.

The Elements of Bandaging and the Treatment of Fractures and Dislocations. By WILLIAM RANKIN, M.A., M.B., Ch.B. With 68 original illustrations. London: Henry Frowde, and Hodder and Stoughton. 1913.

This small volume in the series of Oxford Medical Manuals is based on the author's demonstrations to medical students preparing for the practical portion of their final examination. One may well cavil with its opening statement that "the fine art of bandaging is no longer a necessity." Indeed, the section on bandaging, constituting one-fifth of the book, teaches little but the spiral reverse, figure of eight, and spica. The section on fractures, comprising three-fifths of the book, is equally meagre for so important a subject, though the essence of its teaching is excellent. The section on dislocations is correspondingly brief. The figures throughout are excellent. Despite certain merits, the book as a whole is one which for obvious reasons is not to be recommended. No doctor ought to undertake the treatment of fractures or dislocations who does not know more about them and about bandaging than is here set down.

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THE INTERPRETATION AND MANAGEMENT OF LOW BLOOD-PRESSURE.

MEDICAL literature at the present time teems with references to high blood-pressure, its significance, and measures more or less efficient in causing its reduction. Of course we meet with numerous incidental allusions to low blood-pressure also; but it may safely be said that there is decidedly less definite information regarding it. One of the most illuminating contributions which has as yet been made to our knowledge of the subject, and one which is especially worthy of note as being based on practical observation and experience, is to be found in an address by Dr. Edward E. Cornwall of Brooklyn, N. Y., at the sixteenth annual meeting of the Associated Physicians of Long Island. The variations in blood-pressure found in different individuals, he very properly states, are so great, both in apparent health and in conditions of compensation of the circulation necessitated by disease, that it is impossible to draw rigid lines and say that pressure below these lines is abnormally low. Only such a general statement as the following can be made, and this must be subject to exceptions: For a young adult a systolic pressure of 100 mm. of mercury may be low; for a person of middle age, one of 110; for an elderly person, one of 120; for a person with sclerosis or spasm of arteries supplying a vital region, one of 140; for a person with advanced interstitial nephritis, one of 180. These, as mentioned, are systolic records, and such as are generally taken as the measure of the blood-pressure; but if our observations are confined to the systolic record alone, their clinical value will be small, and we will frequently find the inferences drawn from them contradicted by other evidence. The diastolic pressure is fully as important as the systolic, and the author therefore considers it essential to consider the records of the two together in their numerical relations, that is, the difference between them and their place in the pressure scale; which affords a very useful, though only partial, index of the degree of efficiency of the circulation. The difference between the systolic and diastolic pressure tells us the fall in the circulation between the heart and the arterioles, and is analogous to what in hydrostatics is termed a "head of water." This fall is the pulse-pressure. There is reason to suppose that there is a particular place in the pressure scale for each individual and each particular condition where a given pulse-pressure, other things being equal, will produce the fullest circulation, and one at the same time attended with the greatest circulatory flexibility and reserve power; also that pulse pressures placed above or below this ideal point in the scale, in order to produce an adequate circulation, must ordinarily increase in magnitude, that is, take on an overload, and that such an overload means more or less diminution in the flexibility of the circulation and in the reserve power of the heart. If the diastolic pressure fails to fall in correspondence with a falling systolic pressure, thereby permitting the pulse-pressure to become unduly small, or if, on the other hand, the diastolic pressure falls so low, relatively, that the pulse-pressure takes on a large overload, clinical symptoms of circulatory insufficiency may appear.

Low blood-pressure, although frequently pointing to myocardial degeneration, Cornwall believes more often signifies vasomotor relaxation or paralysis due to toxemias or to nervous and reflex conditions. In uncomplicated cases of myocardial degeneration an extra demand on the circulation may increase the pulse-pressure disproportionately, and the failure of the systolic pressure to rise sufficiently to enable the pulse-pressure to assume the requisite overload may be a measure of the extent of the degeneration. In cases of such degeneration accompanied by arteriosclerosis or nephritis, which naturally raise the diastolic pressure, there is regularly an increase of the systolic pressure,

and an overload in the pulse-pressure, so long as the reserve power of the heart holds out; but when this power, already encroached upon by the myocardial degeneration, is no longer sufficient to support the overload, the circulation fails with the falling systolic pressure. In instances of myocardial degeneration with coexisting conditions which require a compensatory high pressure, the appearance of low blood-pressure is to be looked upon as a bad prognostic sign. Very many chronic toxemias of intestinal origin, as is well known, are associated with conditions which produce high blood-pressure, such as arteriosclerosis and nephritis, but many others are attended with low pressure. In the latter class of cases a non-putrefactive diet is found to raise the pressure, while in the former a diet of this character constitutes a most valuable means of lowering the high blood-pressure. In most acute infections the systolic pressure is low, and the diastolic also, unless there is an obstruction in the periphery. In lobar pneumonia, however, lowering of the blood-pressure to any considerable degree occurs less commonly than in most acute infectious diseases. Ordinarily it is lowered somewhat at the onset, and again at the crisis. In cases of apparent primary vasomotor paralysis and in cases with pronounced myocardial failure, which are not uncommon, the blood-pressure is likely to be very low. In 27 out of 30 cases of pneumonia, all of which terminated favorably, the systolic pressure fell below the pulse-rate; thus contradicting the assertion of Gibson and Hare, that when this occurrence is noted in pneumonia, the prognosis is bad. In pericarditis, as in myocarditis, there is regularly diminution of the systolic force and a lowered systolic pressure, while in compensated valvular disease the blood-pressure is usually normal, except in the case of aortic incompetence, where the systolic pressure is regularly high and the diastolic regularly low. When there is pronounced loss of compensation in valvular disease the blood-pressure falls. In chronic wasting diseases generally the pressure is low, and the same has been observed in cases of excessive tobacco smoking. Surgical shock is recognized as an effective cause of low blood-pressure.

The diastolic pressure appears to be more stable than the systolic, and to show less often marked variations from its normal without definite pathological cause. It indicates the peripheral resistance, which in many instances is determined by permanent pathological conditions. Vasodilator drugs may improve the circulation by increasing the pulse-pressure, while cardiac-depressant drugs may lower the diastolic pressure by diminishing the systolic force and calling for a pulse-pressure overload. In the interpretation of blood-pressure findings, considerable allowance may have to be made for the neurotic factor in the patient and the personal factor in the observer, and the clinician must constantly guard against being misled by these findings, and especially against ascribing too much importance to them when unsupported by other evidences of disease. In the treatment of low blood-pressure removal of the cause, if possible, is, of course, the first duty. If the cause is a chronic toxemia, it can very often be removed or lessened, and this is particularly true of intestinal toxemias. An essential element in the treatment of low pressure is rest, and in persistent low pressure following any of the acute infections, prolonged rest in bed is necessary. If there are definite signs of circulatory insufficiency, cardiac stimulants may be called for, and of the drugs of this class Cornwall has found strychnine, stropanthus and caffeine most generally useful. Digitalis, which may prove of great service in cases with low diastolic pressure and a fairly healthy myocardium, is contraindicated in those with myocardial degeneration and a relatively high diastolic pressure. In cases with sudden severe falling of the diastolic pressure due to toxemic vasomotor dilatation, adrenalin and pituitrin would seem suitable agents to employ. When there is low blood-pressure as the result of severe hemorrhage, the rapid introduction into the circulation of normal saline solution, as well as elevation of the lower part of the body, is called for. In some cases with a relatively high diastolic pressure and a small pulse-pressure, nitroglycerin may prove useful by enlarging the latter, but in cases in which the diastolic pressure is low this drug is absolutely contraindicated.

MEDICAL LEGISLATION. THE REGISTRATION OF NURSES.

There is at present pending before the Massachusetts General Court a House bill (No. 1186) relative to the registration of nurses in

this Commonwealth. This bill provides for an amendment of the act of 1910 by substituting for one of its sections a new section as follows:—

"Applicants for registration under this section, who shall furnish the board with satisfactory proof that they are twenty-one years of age or over, of good moral character, and that they have received a certificate of graduation from a training school for nurses, giving at least two years' training in a hospital, and considered efficient by the board, shall, upon payment of a fee of five dollars, be examined and if found qualified, shall be registered and authorized to use the title 'registered nurse' and shall receive a certificate thereof from the board signed by its chairman and secretary.

"An applicant who fails to pass an examination satisfactory to the board, and is therefore refused registration, shall be entitled, within one year after such refusal, to a re-examination at a meeting of the board, called for the examination of applicants, without the payment of an additional fee. The said board may, after a hearing, by vote of a majority of its members, annul the registration and cancel the certificate of any nurse; and, without any hearing, may annul the registration and cancel the certificate of a nurse who has been found guilty of a crime or misdemeanor.

"The board shall have authority under this section to investigate at any time the training schools for nurses in this Commonwealth for the purpose of determining their fitness and efficiency, as shown by their general equipment, by the character, the methods, and the extent of instruction given therein.

"For the purpose of such investigation, the board may employ a person legally entitled to 'R. N.,' and who is a graduate of a training school for nurses connected with a hospital of at least fifty beds, and which gives a course of instruction in the art of nursing, covering a period of not less than two years."

The essential purpose of this amendment is to give the Board of Registration of Nurses authority to inspect the training-schools whose graduates, by virtue of their diploma, seek registration by the board. A previous attempt to secure legislation to this effect was made by the Massachusetts State Nurses' Association in 1913; but the measure then introduced was defeated in committee by opponents who objected that it would place too much power in the hands of the board. As a matter of fact, it does not seem that this argument is of importance, since the board is an appointive body from which one member is retired each year, and its personnel could readily be changed, if it showed any tendency to arbitrary abuse of authority.

The need and desirability of such inspection are obvious, for without it there can be no standard of training on the adequate basis of which a diploma may be accepted as evidence of fitness. The proponents of the bill have pertinently pointed out that similar training-school inspection has proved of value and success in New York and Illinois, where it has already been adopted. Such examples are important arguments in its favor.

The public needs protection against incompetent nurses as well as against incompetent physicians. The establishment of nurses' registration was a recognition of this fact. But that protection is not adequate without some means of assuring the quality of training received by the nurse who is a candidate for registration. This assurance is provided by the present amendment, and the inspection thus established would not only protect the public against the graduates of inferior schools, but would inevitably raise and make uniform the standards of nurses' training throughout the state.

The hearing for this bill is to be at the State House on Tuesday, March 10, before the Committee on Public Health. It is to be hoped that physicians who recognize its importance, and who are themselves vitally concerned in the maintenance of reliable training for nurses, will be present to speak in explanation of the bill and to advocate its favorable report and passage.

MEDICAL LEGISLATION. THE TUBERCULOSIS PROBLEM.

ON Tuesday of next week, March 10, at 10.30 a.m., there will come up for hearing at the State House before the Committee on Public Health the legislative bills introduced by the Recess Committee on Tuberculosis. These bills, embodying the recommendations of the full committee, include those from House 922 to 931 inclusive. At the same time hearing will be given to certain other bills, House 530 to 533, which have been introduced by a minority of one of the committee. In addition to these, House Bill 1828, not introduced by the Recess Committee on Tuberculosis, will also be heard. These latter bills, House 530-533 and 1828, which include a plan for the reorganization of the State Board of Health on the basis of a paid board of five members, the establishment of a

commission on tuberculosis, and the establishment of a definite policy for the treatment of tuberculosis, we believe to be unnecessary and unwise.

The policy of this JOURNAL in regard to the proposed reorganization of the State Board of Health has already been clearly stated. We are therefore opposed to any proposed legislation which departs from this policy. We are also opposed to any bills which will in any way hamper the centralization of authority in tuberculosis work, which is so desirable and which is strongly advocated by the Recess Committee.

The bills advocated by the full Recess Committee, House Bills 922-931, seem on the whole commendable and deserving of passage.

House 922, An Act to Establish a Department of Diseases Dangerous to the Public Health, is a commendable bill but unnecessary, as the State Board of Health, we believe, already has the power to establish such a department.

House 923, An Act Relative to Inspection by the State Board of Health of all Institutions Caring for Diseases Dangerous to Public Health; and House 924, An Act Relative to Supervision of Local Boards of Health by the State Board of Health, we believe to be wise and desirable.

House 925, An Act to Provide for the Care and Treatment of Incorrigible Tuberculous Patients in a Separate Institution, we believe should not be passed at the present time. The principle embodied in this bill is a commendable one, but further investigation should be made as to the advisability of caring for such incorrigible patients in an institution or institutions already existing, before the state is called upon to build a new and separate hospital for such patients.

House 926, An Act Which Allows Towns and Cities to Incur Indebtedness Outside Their Debt Limit for the Purpose of Building Hospitals, will help certain cities and towns to build local tuberculosis hospitals, which at present they are finding it difficult to do.

House 927, An Act to Allow the State Board of Health to Standardize Tuberculosis Dispensaries, is an excellent one and should by all means be passed.

House 928 defines the powers and duties of the State Board of Health in regard to the ventilation of school buildings in the Commonwealth.

House 929 repeals an existing law, that no hospital shall be established within 100 rods of an inhabited dwelling house in any adjoining city or town without the consent of such city or town. The bill is worthy of passage subject to the supervision of the State Board of Health.

House 930 is an Act Requiring the Trustees of Hospitals for Consumptives to Reserve the Westfield State Sanatorium for Women and Children Only. We believe that this question should be left to this board of trustees to decide.

House 931, An Act Relative to the Removal of Certain Persons Infected with Tuberculosis, will be of great assistance to local boards of health throughout the Commonwealth in caring for that most dangerous class,—the alcoholic and incorrigible advanced consumptive.

These bills, 922-931 inclusive, which have been briefly commented on above, represent the result of a summer of very hard work by the Recess Committee on Tuberculosis of the House of Representatives after about 40 public hearings. They bear on important phases of the health problem in this state, and should receive serious consideration and advocacy by the medical profession as well as by the legislature.

JULES CLARATIE AND THE MEDICAL PROFESSION.

BY the recent death of this great French author and journalist, the medical profession has lost one of its warm admirers and faithful portrayers in fiction.

One of the just criticisms of many modern novelists that the physician is entitled to make, is of the great liberties taken with medical facts and the ignorance displayed, almost childish at times, in dealing with medical subjects. Too much realism and practical medicine in fiction is surely to be deprecated by none more than the physician. Such statements as are made concerning well-known medical facts should, however, be accurate as far as possible for the day and generation in which they were made.

It is refreshing then to think of this great writer, a good friend of medicine, and of his works of fiction concerned with medicine. Among these, "Jean Mornas," and the "Amours d'un Interne" are perhaps the most notable. In the latter novel, according to an article in *La Chronique Médicale*, is shown a

profound knowledge of things medical and scientific. Claratie writes of hysteria especially in a manner showing deep knowledge of this subject. Many of the most unusual cases of this interesting and many-sided affection, he had the opportunity of observing at la Salpêtrière. The sick themselves, the internes, the wards and laboratories of hospitals were all described with wonderful accuracy, but not with pedantry.

When the tired physician seeks relaxation in the form of a novel, and literally has his teeth set on edge by some bizarre or impossible statement concerning medical matters, he will certainly long for the accuracy and care used by this great author in all subjects pertaining to medicine.

SCHOOL DENTAL CLINICS.

THE recently published proceedings of the meeting of the International Dental Federation at The Hague in 1913, show that there are in Germany over 200 school dental clinics; in Sweden, 40; in Norway, 10. Dr. Jessen, of Strassburg, chairman of the congress, announced the following outline of rules of dental care and conservative early treatment.

"From the age of two and one-half years it is desirable that children's teeth be inspected every six months in order to treat the deciduous teeth before they ache, and allow the children to enter the public schools with healthy mouths. It is desirable that every child from this age have his own toothbrush and be practised in its use. The mouths of children who come at an older age to the school clinics should be treated as much as possible in a conservative way. Decayed teeth which cannot be filled must be extracted. Dry roots of deciduous teeth must be left in the mouth till the permanent teeth appear. This will preserve the shape of the jaw. Decayed crowns with dry roots should be cut off and the roots filed smooth. The six-year molars are to be saved if possible until the age of twelve and must be extracted only when they cannot longer be saved or when there is not sufficient room in the mouth. Each child is to be treated individually with methods suited to his age, constitution and character."

ALPHONSE BERTILLON.

ALPHONSE BERTILLON, who did most to elaborate the science of anthropometry, from which he evolved in 1879 a system of criminal identification, died February 13, last. By his work the records of municipal police departments were improved far beyond those of their courts. The police of great cities now regularly exchange the Bertillon measurements of convicted men, and can thus recognize criminals of national and oftentimes of international disrepute. Bertillon was himself for thirty years the head of the Paris Bureau of Identification.

This remarkable man has been considered the inventor of the finger print method of identification, but erroneously. When Mr. William A. Pinkerton was in China he found that the merchants impress their thumbs rather than write their signatures on documents and business agreements, and have ever with them for this purpose a cake of ink. And this, it seems, has been the custom for centuries, from time immemorial, indeed. From China the use of the thumb print spread to India, whence the English introduced it to London. Francis Galton published his *Finger Prints* in 1892 and soon after his *Index of Finger Prints*. He computed that the chance of a finger print of an individual being duplicated by that of another is one in sixty-four billions. And he first reduced finger printing to a system and proposed it to Bertillon. The latter was for a long time skeptical as to its utility, preferring his own system of measurements. It is now a part of the Bertillon system. It was one of the most pitiful incidents of the Dreyfus trial that Bertillon, who had written several works on identification through handwriting, gave an expert opinion which went far toward sending the unfortunate soldier to Devil's Island. The question of the treason of Dreyfus hinged on the identification of letters written by him with that of the infamous bordereau. Bertillon concluded this document and these letters to have been written by the one person. And he so testified, as one of three experts engaged by the state, two of whom declared against Dreyfus, the third maintaining that the soldier had had nothing to do with the bordereau. With the latter two experts engaged by the defense coincided. The verdict at that trial doomed Dreyfus to imprisonment for life in the pestilential tropics. Five years after, through the efforts of Zola, Picquart and others he was returned to Paris, where his case was reversed in the manner with which all the world is now familiar.

MEDICAL NOTES.

Legality of Vasectomy.—Report from Fort Madison, Iowa, on Feb. 19, states that a test case is to be made in the instance of a prisoner in the local penitentiary who protests against the operation of vasectomy which was to have been performed on him under the new law for the sterilization of criminals and insane. The convict will take legal procedure to resist its performance, and his fellow-prisoners are said to have raised from their earnings a sufficient sum to defray the costs of the trial. Despite one's realization of the undesirability of procreation among the unfit, one cannot help sympathizing with the attitude of the convicts.

Scarlet-Fever at University of Illinois.—Report from Champaign, Ill., on Feb. 19 states that scarlet-fever is epidemic among students at the University of Illinois. There have already been a number of cases and two deaths of the disease.

Eradication of Malaria and Typhoid.—On Feb. 21, Senator Ransdell introduced into the national Senate a bill carrying an appropriation of $500,000 for the study and eradication of malaria and typhoid fever in the United States.

BOSTON AND NEW ENGLAND.

Birth of Triplets.—Report from Chatham, Mass., on Feb. 20, announces the birth to Mrs. Edward L. Clark, of that town, of triplets, two boys and a girl, weighing respectively 6, 6¼, and 7 pounds.

Sale of Morphia on Telephone Order.—In the Boston municipal court on Feb. 20, Judge Murray ruled that it is illegal to sell cocaine, morphine, or opium, on an order given by a physician over the telephone, and fined a drug clerk $25 for so doing. The statute reads "upon the written prescription or order of a physician," and does not include on oral order given directly or telephoned.

Hospital Bequests.—The will of the late Mrs. William A. Abbe, of New Bedford, Mass., which was filed in that city on Feb. 21, contains a bequest of $50,000 to the St. Luke's Hospital of New Bedford, and one of $5000 to the Boston Lying-in Hospital.

NEW YORK.

Smallpox and Vaccination.—Health Commissioner Biggs recently addressed a letter to the health officers of the state in reference to smallpox. During the year 1913, he says, there were 823 cases of the disease in New York state. In the large cities of New York, Buffalo and Rochester, with a population of over 6,000,000, where the law compelling the exclusion of unvaccinated children from school has been rigidly enforced, there have been only 39 cases—mostly imported. Smallpox now exists in epidemic form in Niagara Falls, where there is a widespread sentiment against vaccination. The cases in this epidemic have been of a mild type, but in unvaccinated communities there is every possibility of the epidemic becoming far more serious. From Jan. 1 to Jan. 27 there were reported 154 cases at Niagara Falls and 15 cases at other places in Niagara County; also a number of cases in Chautauqua, Erie, Herkimer and Montgomery counties.

Two New Appointments.—Commissioner Biggs has appointed Dr. H. L. K. Shaw of Albany director of the division of child hygiene in the State Health Department. Dr. Shaw has been clinical professor of diseases of children in the Albany Medical College, and is at present chairman of the pediatrics section of the American Association for the Study of Infant Mortality. Commissioner Biggs has also appointed Dr. Augustus B. Baldwin of New York director of the division of laboratories and research. Dr. Baldwin is a graduate of the Massachusetts Institute of Technology and of the medical department of Columbia University. At the latter school he has held a number of positions, and from 1909 to 1913 was adjunct professor of bacteriology.

Outbreaks of Typhoid.—The State Health Department reports recent outbreaks of typhoid fever at Ellicottville, Cattaraugus County; Walden, Orange County; and Fishkill, Duchess County. The outbreak at Fishkill, it states, is a striking illustration of the quick spread of infection from one unsuspected source. An unrecognized case of typhoid, the infection of a few bottles of milk, resulting in four cases, the infection of a well by one of these cases, and then eight cases among the few persons who used the water of this well, giving a probable

total, exclusive of the first case, of 18 in a village of 500 inhabitants—all present a striking chain of evidence which would seem to leave no doubt as to the origin and development of this outbreak.

A CENTENARIAN.—Theodore Harris of Camden, N. J., died on February 13, at the alleged age of 110 years. He was a native of Maryland and served in the navy throughout the Civil War, and the records of the Navy Department appear to support the correctness of his great age, as they give the date of his birth as May 20, 1813.

ORTHOPEDIC DISPENSARY AND HOSPITAL.—The recently published forty-sixth year book of the New York Orthopedic Dispensary and Hospital, records the work of that institution for the calendar year 1913. During this period 7490 patients were treated at the dispensary, of whom 2506 were new cases. At the hospital, 510 operations were performed on 444 patients. The patients made 30,366 visits to the dispensary, and 11,022 visits were made by nurses to patients in their homes. A year ago an appeal was made to the public for $1,000,000 to erect, equip, and maintain a new hospital building. Of this sum, $545,000 have already been raised. A site has been selected and purchased, plans are in preparation, and the work of construction will be begun as soon as the remainder of the sum can be secured.

COST OF CARE OF ALIENS.—A report of the hospital investigating board, submitted on Feb. 19 to the New York board of estimate, states that the city expends annually $1,000,000 for the hospital and almshouse care of aliens, many of whom have entered this country within five years, and were diseased on admission.

OFFICERS, NEW YORK NEUROLOGICAL SOCIETY.—At the last regular meeting of the New York Neurological Society, the following officers were elected.

President, Dr. Smith Ely Jelliffe; first vice-president, Dr. E. G. Zabriskie; second vice-president, Dr. F. Kennedy; corresponding secretary, Dr. J. Ramsay Hunt; recording secretary and treasurer, Dr. C. E. Atwood; councillors, Drs. L. P. Clark, A. S. Taylor, F. Tilney, C. L. Dana, and I. Abrahamson.

Current Literature

MEDICAL RECORD.

FEBRUARY 7, 1914.

1. POLK, W. M. *Treatment of Retrodisplacements of the Uterus.*
2. CLARK, L. P. *Some Observations upon the Etiology of Mental Torticollis.*
3. CARTER, W. W. *Operations for the Correction of Deformities of the Nose.*
4. JEWETT, D. B. *Hypophyseal Disease as Related to Diabetes Insipidus; with Report of Two Cases.*
5. GILMOUR, A. J. *A Case of Scleroderma.*
6. WILLIAMS, E. H. *The Drug-Habit Menace in the South.*
7. BERNSTEIN, E. P. *Brain Abscess Due to the Bacillus Coli Communis.*

FEBRUARY 14, 1914.

1. SCHMIDT, A. *Some Remarks Concerning Chronic Diarrhea and Constipation.*
2. MARSHALL, H. W. *Stiff and Painful Shoulders.*
3. NICHOLS, J. B. *Metabolism and Vitality.*
4. *BERLIN, W. C. K. *Bacteriaemia, Infections and Bright's Disease.*
5. BUGBEE, H. G. *Further Observations on the Use of the High Frequency Spark for the Relief of Prostatic Obstruction in Selected Cases.*
6. HAGEMANN, J. A. *The Upper Respiratory Mucous Membranes as Emunctories.*
7. OCH, B. F. *Dermatoses Due to Toxemia.*

4. Berlin invites discussion and investigation of some new ideas on the causation of Bright's disease. Nephritis, he says, is always of bacterial origin, and cultures taken from fresh urine will give abundant colonies of micro-organisms. The toxemias do not cause nephritis, although they do increase the blood-pressure. When acute inflammation of the kidney subsides it leaves the renal tissue damaged and degenerative changes, *i.e.* chronic nephritis, begin at once. [L. D. C.]

NEW YORK MEDICAL JOURNAL.

FEBRUARY 7, 1914.

1. DACOSTA, J. C. *Personal Experience with Tumors of the Carotid Body.*
2. PEDERSEN, V. C. *Neoplasm of the Bladder.*
3. *KEMP, R. C., AND VANDER VEER, A., JR. *An Inflating Gastroscope and Duodenoscope.*
4. CHAMBERLAIN, W. P. *The Etiology of Oriental Beriberi.*
5. EHRENREICH, S. G. *A Case of Auricular Fibrillation in a Child.*
6. ROSENOW, E. C. *Lesions Produced by Various Streptococci; Endocarditis and Rheumatism.*
7. DABNEY, V. *Herpes Zoster Oticus.*
8. TAUNEBAUM, S. A. *Psychanalysis.*
9. SEELYE, H. H. *Cutaneous Epitheliomata Cured by Sunlight.*

3. Kemp and Vander Veer describe the direct pneumatic gastroscope which they use in stomach cases. They find it a valuable aid in locating and studying ulcers, polypi and foreign bodies in the stomach, and therefore indirectly useful in the prevention of gastric cancer. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 31, 1914.

1. *MAYO, W. J. *Accidental Injuries to the Descending Portion of the Duodenum During Removal of the Right Kidney.*
2. *MCWILLIAMS, C. A. *The Periosteum in Bone Transplantations. Is Contact with Living Bone Necessary for the Life of Grafts, and Will Transplanted Periosteum Produce New Bone?*
3. KNIGHT, C. P. *Epididymotomy.*
4. RICHTER, H. M. *Congenital Pyloric Stenosis. A Study of Twenty-Two Cases with Operation by the Author.*
5. YOUNG, W. W. *Paroxysmal Hemoglobinuria, with Report of a Case.*
6. DANNREUTHER, W. T. *Corpus Luteum Organotherapy in Clinical Practice, with Report of a Case of Bilateral Salpingo-Oophorectomy in Which the Administration of Corpus Luteum Extract was Followed by the Re-establishment of Menstruation.*
7. THOMAS, B. G., AND IVY, R. H. *Use of Cholesterinized Antigens in the Wassermann Reaction.*
8. COHOON, R. C. *Increase in Toxication of Ether by New Methods of Administration.*
9. SPITZIG, B. L. *Vagotony and Its Relation to Mucous Colitis.*
10. FOWLER, O. S. *Ureteral Obstruction Causing Urinary Stasis. A New Etiology in Kidney-Stones, with a New Method of Nephropexy to Secure Ideal Natural Drainage.*
11. GARCIA, L. C. *The Practical Application of Military First Aid in Railway Surgery.*
12. CUNNINGHAM, A. T. R. *Report of a Case of Gradual Occlusion of the Common Carotid Artery in the Treatment of Pulsating Exophthalmos.*
13. STEWART, H. M. *Case Illustrating Value of Roentgen Ray in Diagnosing Obscure Fractures.*
14. THOMAS, W. H. *Abscess Caused by Fish-Bone; Hematemesis Controlled by Hot Water.*
15. GERSTLEY, J. R., AND FULLER, H. B. *A Simple Technic for Blood-Cultures in Children.*
16. VIKO, E. *Tension Sutures.*
17. ROSENBLOOM, J. *The Preparation of Dried "Zymase" from Yeast, for Use in Fermentation Tests of Urine.*

1. Mayo finds that such injuries practically never occur except as the result of a binding down of the duodenum from infection or carcinoma, or when the pedicle of the kidney slips and large forceps are applied and left on several days to control hemorrhage.

2. McWilliams concludes from experimental work that the theory that contact with living bone is necessary for the subsequent life of grafts must be given up. Living bone grafts have life inherent in themselves and are capable of permanent growth, even when transplanted into the soft parts.

The life of grafts is dependent on sufficient blood supply. Forty-eight per cent. of the author's bone grafts were successful without periosteum whether contacted with living bone or not. This goes to show that there is some other factor present making for the life of grafts than the periosteum or contact with living bone, and this the author believes is a sufficient blood supply. Periosteum, however, is a strong factor in producing this supply and should always be used when possible. [E. H. R.]

FEBRUARY 7, 1914.

1. *CHAPIN, C. V. *The Air as a Vehicle of Infection.*
2. *SCHMIDT, A. *Hyperacidity of the Stomach.*
3. NEILSON, C. H. *Some Points in the Treatment of Hyperacidity, Especially with Reference to the Use of Hydrogen Dioxid.*
4. WARFIELD, L. M. *Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women.*
5. *LOWY, O. *A Serum Reaction as an Aid in the Diagnosis of Cancer.*
6. VON EZDORF, R. H. *Investigation of the Prevalence of Malarial Fevers in the United States by the United States Public Health Service.*
8. COLE, H. C. *Possibilities in the Routine Practice of a Small Hospital.*
9. DICK, G. F., AND EMGE, L. A. *Brain Abscess Caused by Fusiform Bacilli.*
10. RANSOHOFF, J. *Heredity in Bone Lesions, with the Report of an Unusual Family History.*
11. REYNOLDS, C. E. *A Case of Brain Abscess.*
12. WILDER, W. O. *A Case of Hardware Swallowing.*
13. DORRANCE, G. M. *A Transverse Incision for Operation on the Scrotum.*
14. BARR, A. S. *A Case of Right Inguinal Hernia of Ovary and Tube.*
15. PARKER, C. A. *A Congenital Malformation of the Neck.*

1. Chapin gives a most thorough review of the etiology and mode of transmission of all the so-called infections in contagious diseases and shows that in practically none except tuberculosis can the factor of air infection be given any weight, except that of close contact.

2. Schmidt advises gastroenterostomy in those cases of persistent hyperacidity of the stomach in which internal treatment has failed and in which the condition unfits the patient for work. When comfort only is concerned, medication is the more preferable form of treatment.

5. Lowy found in 19 cases of carcinoma, examined by Abderhalden test, a positive test in all cases. Three post-operative cases of two, four and five years' duration and who do not now show any clinical signs of recurrence gave negative reactions. One case of benign tumor of the breast, one of fibroid and one of diabetes gave positive tests, but Lowy believes these due to faulty technic. He feels that the test is of value and might be of especial value in obscure stomach cases and in women approaching the menopause. [E. H. R.]

THE LANCET.

JANUARY 17, 1914.

1. FOX, R. H. *The Progress of Life Assurance Medicine in the Past Thirty Years.*
2. *GORDON, W. *The Value of the Cardiac Sign in Cancer. Fifty Consecutive Diagnoses with 6% of Error.*
3. COPE, V. Z. *The Early Diagnosis and Treatment of Ruptured Intestine.*
4. YEARSLEY, M. *The Question of "Concubitancy" in Cousin Marriages.*
5. TURNER, G. G. *Recurrent Intussusception: The Record of a Case Which was Operated upon Three Times.*
6. DUFF, D. *Notes on a Case of Extra-uterine Pregnancy in a Rudimentary Fallopian Tube.*
7. WHITE, H. *A Case of Schistosomiasis.*
8. ROLLESTON, H. D., AND FRANKAU, C. H. S. *Acute Leukemia Simulating Caries of the Spine.*
9. ARMSTRONG-JONES, R. *The Rational Treatment of Incipient Insanity and the Urgent Need for Legislation.*

2. Gordon again enthusiastically endorses the cardiac sign in cancer and describes cases in which this sign has been of great help in diagnosis. This sign is based on the abnormal increase in the area of cardiac dullness. It is very hard to see why such increase should occur in loss of flesh due to cancer more than it does in other cases where the loss is due to other causes. [J. B. H.]

Obituary.

HORACE EUGENE MARION, M.D.

DR. HORACE EUGENE MARION, of Brighton, who died suddenly of heart disease on Feb. 8, was born at Burlington, Vt., on Aug. 3, 1843. In 1862 he entered Amherst College, but left to enlist in the Union Army, where he served in the ranks for the remainder of the Civil War. In 1866 he received the degree of B.S. from Dartmouth College, and that of M.D. in 1869. He immediately settled at Brighton, where he continued active in the practise of medicine until his death.

Dr. Marion was formerly president of the Middlesex South District Medical Society and was a member of the American Medical Association, the Massachusetts Medical Society, Massachusetts Association of Boards of Health, Boston Society of the Medical Sciences, Obstetrical Society of Boston and the Boston Medical Library Association. After the War he continued to serve in the local militia, and became medical director of the second brigade, M.V.M. He is survived by his widow, one daughter, and one son.

The unvarying cheerfulness of Dr. Marion's disposition made him, as a practitioner, particularly beloved by all his patients and colleagues. He was modest but vivacious, energetic and companionable. One of his many friends has fitly said of him that he went about with "high thoughts seated in a heart of courtesy." He died happily, as every physician would wish to do, without warning in the readiness of his daily activity, and gave his life as quietly at the end as he had always given it for his fellow-men.

Miscellany.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, WEEK ENDING FEBRUARY 21, 1914.

February 13, Medical Inspector William C. Braisted, detached from duty as Fleet Surgeon of Atlantic Fleet, and ordered to duty as Chief of Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Assist. Surgeon J. B. Walker, commissioned assistant surgeon in Medical Reserve Corps, from January 23, 1914.

February 18, Medical Inspector E. P. Stone, ordered to treatment at the Naval Hospital, New York, N. Y.

P. A. Surgeon W. L. Mann, Jr., detached from Naval Hospital, Mare Island, Cal., and ordered to Asiatic Station, via Army Transport leaving San Francisco, Cal., March 5, 1914.

Assist. Surgeon W. W. Wickersham, Medical Reserve Corps, ordered to Navy Yard, Brooklyn, N. Y.

RECENT DEATHS.

DR. FREDERICK H. OSGOOD, who died last week at Allston, Mass., was born in Newton, Mass., on April 16, 1857. He graduated from the Massachusetts Agricultural College in 1878, and after studying at the Royal Veterinary College, Edinburgh, settled in the practise of his profession at Springfield, Mass. He was for a time lecturer on cattle pathology and professor of veterinary surgery at the Harvard Veterinary Medical School. From 1884 to '87 he was president of the Massachusetts Veterinary Association, and served on its executive committee from 1888 to 96. From 1885 to 96 he was vice-president of the United States Veterinary Medical Association, and in the latter year its president. In 1891 he became veterinary surgeon to the Massachusetts Volunteer Militia. From 1894 to 96 he was chairman of the Massachusetts Cattle Commission. He was also president of the Association of Cattle Commissions of New England and a fellow of the Edinburgh Veterinary Medical Association. He is survived by a daughter and two sons.

DR. WESLEY B. PERKINS, who died on Feb. 19, at Roxbury, Mass., was born at Windsor, Me., in 1842. He was educated at Kent's Hill Academy, Me., and at Bates College, and practised as a physician at Bridgton and at Malden, Mass., until his retirement in 1906. He is survived by a niece and by one brother.

DR. JAMES A. COX of New York died on February 3, at the age of 55 years. He was a native of Kentucky and was graduated from the Long Island College Hospital in 1891.

DR. EDWARD GARDINER DAY of New York, a graduate of the College of Physicians and Surgeons in 1888, died on February 3. He was born in 1843 and retired from active practice in 1908.

DR. NATHAN S. MARSHALL, who died recently at Knoxville, Tenn., was born in 1831. He was a naval surgeon, and served aboard the *Vandalia* in 1854 under Commodore Perry.

DR. JAMES JOSEPH BURNS, of the Borough of the Bronx, New York City, died on Feb. 19, at St. Francis' Hospital, after an operation for appendicitis. He was born in New York, and was 33 years of age. Dr. Burns was graduated from New York University and Bellevue Hospital Medical College in 1902, and afterwards served as interne in Bellevue Hospital.

NOTICE.

THE BOSTON SOCIETY OF MEDICAL SCIENCES.—The next meeting will be held on Tuesday evening, March 10, 1914, in the Surgical Amphitheatre of the Boston City Hospital, at 8.15 o'clock.

The meeting will be conducted by the staff of the Boston City Hospital.

The program will be as follows:

Exhibition of cases.

Dr. F. W. White: "Benzol Treatment of a Case of Leukemia." (5 minutes.)

Dr. F. B. Lund: "Treatment of Oblique and Comminuted Fractures of the Femur." (5 minutes.)

Dr. Ernest Young: "Extra-Uterine Pregnancy." (10 minutes.)

Dr. F. J. Cotton: "The Principles in the Treatment of Infected Joints." (5 minutes.)

Dr. J. H. Cunningham, Jr.: "Specimen of Carcinoma of the Prostate, Associated with a Large Prostatic Cyst." (5 minutes.)

Dr. F. H. Lahey: "Statistics of 100 Deaths Following Appendicitis." (10 minutes.)

Dr. G. P. Sanborn: "Remarks in Intra-Spinous Serum Treatment of Syphilis of the Central Nervous System." (5 minutes.)

Dr. F. S. Graves: "A Case of Two Primary Heterogeneous Malignant Tumors with Metastases from Each in the Liver." (5 minutes.)

Dr. O. J. Hermann: "Observations on the Luetin Test." (By invitation.) (5 minutes.)

Dr. Horner: "Treatment of Typhoid Fever with Vaccines." (5 minutes.)

THOMAS ORDWAY, *Secretary and Treasurer*,
Harvard Medical School.